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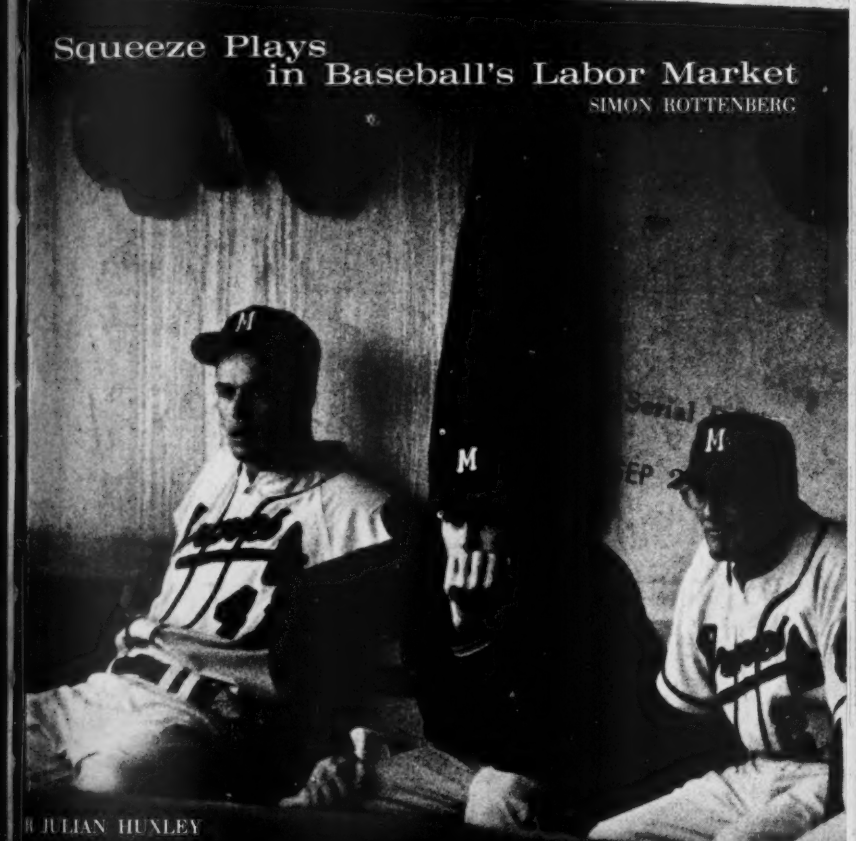

Squeeze Plays in Baseball's Labor Market

SIMON ROTTENBERG

JULIAN HUXLEY

Man and the Future of Evolution

Let the Teachers Rescue Education

MYRON LIEBERMAN

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Squeeze Plays in Baseball's Labor Market

By SIMON ROTTENBERG

Once he signs that first contract, the player is never again a free agent. Organized baseball defends its controlled labor market, but is it really the best solution?

In the eyes of his admiring public the major-league baseball player is a man to be envied. But if one casts an eye on the closed labor market in which he operates, one is inclined to wonder if his lot could not be vastly improved.

Since its inception in the 1870's, organized baseball has developed a market for baseball players and their services in which there is less than perfect freedom to buy and sell.

Until he signs his first contract, the player may sell his services to any one of a number of teams that may bid for him.

But, once he has signed his first contract in organized baseball, he is no longer free to choose his employer.

The baseball industry offers many arguments for operating the system in this manner, chief among them that it permits poorer teams to retain players whom they might otherwise lose to higher bidders. This, it is said, causes teams to be more or less equal in quality and makes it uncertain which shall win and which lose in any given game. But what about alternatives? Would the outcome of games become in fact more certain if the players continued throughout their playing lives to be free to sell their services to any bidder? How would the player himself fare in this situation?

To answer these questions, let us first consider the structure of the industry and the rules of the market.

The rules for the baseball market are defined in seven documents which make up the constitutional papers of the baseball industry.

Taken all together, the documents constitute baseball as a collusive combination. The parties to this combination have agreed to be bound by rules that inhibit competition and to enforce these rules by extralegal sanctions.

The organized baseball industry consists of two major leagues and a number of minor leagues.

The minor leagues are classified into categories defined by the sum of the populations of the cities of which each is composed. These categories are called AAA, AA, A, B, C, and D.

The minor leagues are made up of teams that are either "independent" or are "farm" teams of a major-league team. Farm teams are either owned outright by a major-league team or controlled by "working agreements" which give the major-league club, in return for financial or other assistance, the right to acquire the services of a specified number of players of the minor-league teams. A farm system makes it possible for a major-league team to accumulate a pool of players from which it can make replacements on its own team, and it provides a place where promising players can be "seasoned" for major-league play.

Every team admitted to organized baseball has "territorial rights" in the city in which it is located. No team in organized baseball may play in the territory of any other team without the latter's consent. Each team, therefore, monopolizes its own territory, within organized baseball, and this monopoly right is a marketable commodity.

An elaborate system of rules has been devised to govern the contractual relationships between players and teams and among teams in the disposition of players' services. This system of rules structures the labor market and imposes constraints upon freedom in the market.

In the market for free agents—as a player is considered before signing his first contract—the competition is very intense. A star high-school player may have a large number of representatives of different teams prepared to negotiate with him the day after his graduation from school.

When bidding is heavy for the services of a particular free agent, the player is payed a *bonus* for signing a contract with

one team rather than another. Bonuses of $100,000 or more to secure a player's signature are not unknown, although they have usually been much smaller.

The bonus can be thought of as part of the player's first year's salary or as an income supplement which is distributed over the length of his playing life. The size of the bonus is not the only dimension of bidders' offers. A free agent will also choose among alternative bidders on the basis of his estimates of his lifetime baseball earnings with each bidder, and these estimates are compounded of his estimates of his length of playing life (which may be longer with one team than with another) and his estimates of his average annual earnings.

When a player signs a contract, it must be a *uniform* contract, the terms of which are specified in detail by organized baseball.

Almost all contracts run for a one-year term. However, the uniform player contract contains a renewal clause, conventionally called the *reserve clause*, which permits the team to renew the contract for the following year at a price which the team may fix—subject, in the major leagues only, to the constraint that the salary in the following year shall not be less than 75 per cent of the salary in the current year.

The team with which the player is contracted has exclusive right to the use of his playing services; he may not play baseball elsewhere without its consent. His contract may be assigned by this team to another team, and he is bound to report for play with the assignee team. No other team in organized baseball may employ him.

Once a player has signed his first contract in organized baseball, therefore, he is no longer free to dispose of his services. He may withdraw from organized baseball and follow

some other calling, but he may not choose freely among bidders for him within baseball.

Some attempts have been made to enforce in the courts the exclusive right to contracted players' services which is conveyed by the uniform contract. On the principle that involuntary servitude is contrary to public policy, the courts have been reluctant to compel players to fulfil their contracts, to restrain them from performing for others, or to restrain others from employing them, and these attempts have met with little success.

Baseball has therefore resorted to extralegal sanctions to enforce exclusive rights. A player who refuses to play for a team by which he is contracted, or refuses to play for a team to which his contract has been assigned, is suspended; he may not be employed by another team in organized baseball. A team in organized baseball that employs a suspended player will find that other teams will refuse to meet it on the field.

The reserve rule is the heart of the limitation on freedom in the baseball labor market. A number of different defenses have been offered for it, some specious and others somewhat stronger.

The defense most commonly heard is that the reserve rule is necessary to assure an equal distribution of playing talent among opposing teams; that a more or less equal distribution of talent is necessary if there is to be uncertainty of outcome; and that uncertainty of outcome is necessary if the consumer is to be willing to pay admission to the game.

This defense is founded on the premise that there are rich baseball clubs and poor ones and that, if the players' market were free, the rich clubs would outbid the poor for talent, taking all the competent players for themselves and leaving only the incompetent for the other teams.

Most of the revenue of baseball clubs comes from admission receipts. A rich club, therefore, is one located in an area where attendance at baseball games is high; a poor club is one whose attendance is low.

Attendance at baseball games, as a whole, depends upon the general level of income, the price of admission to baseball games relative to the prices of recreational substitutes, and the goodness of substitutes. Attendance at the games of any given team varies directly with the size of the population of the territory in which the team has the monopoly right to play, the size and convenience of location of the ball park, and the average rank standing of the team during the season in the competition of its league. It varies inversely with the goodness of leisure-time substitutes for baseball in the area and of the dispersion of percentages of games won by the teams in the league.

If, it is argued, other things being equal, a team in an area with a large population has larger revenues than teams in less populous areas, then, in a free players' labor market, the former will get the most capable players, there will be wide variation among teams in the quality of play, the outcomes of contests will become certain, and attendance will decline.

The first professional baseball league was the National Association of Professional Baseball Players, organized in 1870. It did not survive five seasons of play, and A. G. Mills, who first proposed the reserve rule, is reported to have said of its experience:

> This condition was greatly aggravated by the general practice on the part of the richer clubs of stripping the weaker ones of their best playing talent. Then would follow the collapse of a number of these clubs in mid-season, leaving their players unpaid, while the winning clubs, owing to the disbandment of the weaker ones,

would also frequently fall from inability to arrange a paying number of games.

To bring the process of unequal distribution of talent to a halt, it was thought necessary to devise the reserve rule to permit the poorer teams to retain the services of players whom they would otherwise lose to teams prepared to pay higher salaries.

If this was the purpose of the reserve rule, there seems to be some question whether it has been successful. A number of different measures suggest themselves for testing the equality of distribution of player ability among teams. A simple test is one which counts the number of times each team has won its league pennant. In the period 1920–59 the New York Yankees led the American League in twenty-four years, and the Chicago White Sox and the St. Louis Browns (now the Baltimore Orioles) in one. In the National League, in the same period, the St. Louis Cardinals, the New York (now the San Francisco) Giants, and the Brooklyn (now the Los Angeles) Dodgers each won in nine years, and the Philadelphia Phillies in one year.

Clearly, there has been unequal distribution of talent. The Yankees have had better fortune than the others. By offering higher prices for the purchase of players' contracts from other teams, they have acquired players already under contract; by offering higher first-year salaries and prospects for higher professional lifetime earnings, they have induced the better free agents to sign with them; and by investing heavily in a farm system in the minor leagues, they have had access to a large pool of players from which the most capable could be drawn to the Yankees themselves.

By this simple empirical test, it can be seen that the reserve rule has not distributed players among teams perfectly equally;

the teams that were prepared to outbid others for players have not been frustrated by the rule.

If the reserve rule does not, in fact, equalize the distribution of players, can it have some other result? By confronting each contracted player with an exclusive bidder, the rule can have the effect of depressing salaries, at least for some players. The relevance of salary levels to the rule was clearly seen in an official release of the National League on September 29, 1879, shortly after the adoption of the reserve rule for the first time.

> The financial results of the past season prove that salaries must come down. We believe that players in insisting on exorbitant prices are injuring their own interests by forcing out of existence clubs which cannot be run and pay large salaries except at a large personal loss. . . . In view of these facts, measures have been taken by this league to remedy the evil to some extent in 1880.

The "measures" taken were a secret agreement among the members of the league that each might reserve five players who could not be contracted by other teams. Over the years the number of players who might be reserved has been revised upward from time to time until now the major-league teams are permitted to reserve forty players and minor-league teams a smaller number, depending on their league classification.

Very little information is available on player salaries. All contracts are registered with the relevant executive offices of major- and minor-league baseball, but salary information is not made public. The reports of player salaries which appear in the public press are said not to be reliable. Some salary data were divulged, however, by congressional committee hearings in 1951.

The rules now impose a minimum salary in the major leagues of $7,000 per year for most players.

On July 1, 1950, the range of major-league salaries was from

$5,000 to $90,000 per year. The mean was $13,288, and the median $11,000. In the minor leagues salaries were lower.

The large variation in players' salaries can be expected to attract many players who are hopeful that they will finally fall in the upper levels of the salary distribution. This will cause the average salary of baseball players to be below the level at which it would lie if the dispersion of salaries were smaller.

Baseball-playing skills, at some level of proficiency, are, of course, widely distributed among the young male population of the United States and some other countries of the Western Hemisphere. In the lower minor leagues players make themselves available at wages which seem to be less than they could earn in some other employment. A congressional committee heard testimony from one former minor-league player that he accepted his first contract in 1941 for a salary of $60 a month and that this was the common beginning wage in leagues of the same classification at the time.

If players are willing to sell their services for such a wage, it is perhaps because they derive very large psychic income from playing the game and because, on the average, the players in the lower leagues overestimate the probability that they will excel in play and be chosen to receive a higher salary with a team of a higher-classification league.

The reserve rule, which binds a player to the team that contracts him, gives a prima facie appearance of a buyers' monopoly. Once having signed a first contract, a player is confronted by a single buyer who may unilaterally specify the price to be paid for his services. Each team and the players under contract to it appear in a labor market specific to them. This market is distinct from those of other teams. No movement among markets, either of buyers or sellers, is permitted. In each market the team operates as buyer; the players, as sellers. While

there is no competition on the buying side, there is intense competition on the sellers' side.

Is it clear that the reserve rule is necessary to achieve more or less equal quality of play among teams? Assume that teams are distributed among locations, as they are in fact, so that the revenues of some are very much larger than those of others. Assume a free players' labor market, in which players may accept the offer of the highest bidder and teams may make offers without restraint.

At first sight, it may appear that the high-revenue teams will contract all the stars, leaving the others only the dregs of the supply; that the distribution of players among teams will become very unequal; that contests will become less uncertain; and that consumer interest will flag and attendance fall off. On closer examination, however, it can be seen that this process will be checked.

Professional team competitions are different from other kinds of business ventures. If a seller of shoes is able to capture the market and to cause other sellers of shoes to suffer losses and withdraw, the surviving competitor is a clear gainer. But in baseball no team can be successful unless its competitors also survive and prosper sufficiently so that the differences in the quality of play among teams are not "too great."

If the size of a baseball team is thought of as the number of players under contract to it, each player being weighted by some index of his quality, then diseconomies of scale set in at some point when a team too far outstrips its competitors, and they become larger in proportion to the magnitude of the differences.

Two teams opposed to each other in play are like two firms producing a single product. The product is the game, weighted by the revenues derived from its play. With game admission

prices given, the product is the game, weighted by the number of paying customers who attend. When 30,000 attend, the output is twice as large as when 15,000 attend. In one sense, the teams compete; in another, they combine in a single firm in which the success of each branch requires that it be not "too much" more efficient than the other. If it is, output falls.

Beyond some point—say, when a team already has three .350 hitters—it will not pay to employ another .350 hitter. If a team goes on hiring additional stars, it will find that the total output —that is, admission receipts—of the combined firms (and, therefore, of itself) will rise at a less rapid rate and finally will fall absolutely. At some point, therefore, a first star player is worth more to poor Team B than, say, a third star to rich Team A. At this point, B is in position to bid players away from A in the market. A's behavior is not a function of its bank balance. It does what it calculates it is worthwhile to do; and the time comes when, in pursuing the strategy of its *own* gains, it is worthwhile, whatever the size of its cash balance, to forego the services of an expert player and see him employed by another team.

The wealthy teams will usually prefer winning to losing. If they do, they will prefer winning by close margins to winning by wide ones. If their market behavior is consistent with this objective—that is, if they behave like rational maximizers—playing talent will be more or less equally distributed among teams.

It does not require collusion to bring about this result. It is not senseless to expect it to be produced by a free labor market in which each team is separately engaged in gainful behavior. The position of organized baseball that a free market, given the unequal distribution of revenue, will result in the engrossment of the most competent players by the wealthy teams is

open to some question. It seems, indeed, to be true that a market in which freedom is limited by a reserve rule such as that which now governs the baseball labor market distributes players among teams about as a free market would.

Players under contract to a team may be used by that team itself, or they may be sold to another team. Each team determines whether to use a player's services itself or to sell him, according to the relative returns on him in the two uses. If the return will be higher from sale, he will be sold, and vice versa. Now, if he can be sold to another team for a price higher than his worth to his present team, it is because he is worth more to the team that buys him than to the team that sells him. It follows that players will be distributed among teams so that they are put to their most "productive" use; each will play for the team that is able to get the highest return from his services. But this is exactly the result which would be yielded by a free market. The difference is only that in a market subject to the reserve rule part of the price for the player's services is paid to the team that sells his contract, and part of his value is kept by the team that holds his contract; in the free market the player gets his full value.

Markets in which the freedom to buy and sell is constrained by the reserve rule do not promise better results than do markets constructed on the postulate of freedom. It appears that free markets would give as good aggregate results as any other kind of market for industries, like the baseball industry, in which all firms must be nearly equal if each is to prosper.

On welfare criteria, of course, the free market is superior to the others, for in such a market each worker receives the full value of his services, and exploitation does not occur.

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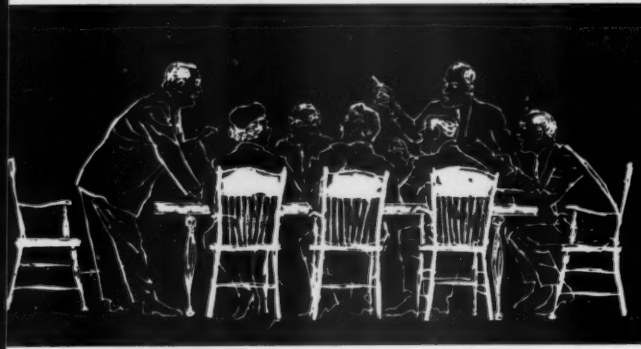
Let the TEACHERS Rescue Education

- *The "Conant report" dumps the problem of education into the wrong lap—the public's.*
- *The teachers should change education—but they'll be ineffective until they present a unified front, by merging their top professional organizations.*
- *The teachers should be telling school boards what to do on professional matters—not the other way around.*



By MYRON LIEBERMAN

It's time for the professionals—the teachers—to take a front line position in the battle for education.

It is unrealistic to expect the public to initiate basic educational reforms. Intelligent non-professional action is essential at certain stages, but the major and enduring responsibility for improving our schools lies with the people who work in them.

This view calls for a reassessment of current strategy designed to improve education, which, in my opinion, misconceives the role of the public.

I suggest we take a hard look at the teachers' problems. They are important to everyone, since they involve the nature and limits of occupational action in areas of fundamental public concern.

To illustrate current strategy for achieving educational improvements, and my criticisms of this strategy, I propose to analyze the development and implementation of the "Conant report" (James B. Conant, *The American High School Today: A First Report to Interested Citizens.* New York: McGraw-Hill Book Co., 1959).

The background of the report is as follows: Dr. Conant was approached by the Carnegie Corporation to see whether he had any interest in returning to the field of education after completing his duties as ambassador to the Federal Republic of Germany. Pursuant to the discussions between Dr. Conant and representatives of the Carnegie Corporation, the latter made a grant to the Educational Testing Service to enable Dr. Conant to study certain problems relating to comprehensive high schools in the United States. In Dr. Conant's own words, "comprehensive high schools" are those "whose programs correspond to the needs of *all* the youth of the community."

Dr. Conant did not attempt to conduct a broad survey of American high schools generally, or even of comprehensive schools. His overriding interest was to ascertain

> whether, under one and the same roof and under the same management, it is possible for a school to fulfill satisfactorily three functions: Can a school at one and the same time provide a good general education for *all* the pupils as future citizens of a democracy, provide elective programs for the majority to develop useful skills, and educate adequately those with a talent for handling advanced academic

subjects—particularly foreign languages and advanced mathematics? The answer to this question would seem to be of considerable interest for the future of American education. If the answer were clearly in the negative, then a radical change in the structure of American public secondary education would be in order. . . . On the other hand, if the answer is in the affirmative, then no radical change in the basic pattern of American education would seem to be required.

Note that if Dr. Conant were able to locate at least one comprehensive school satisfactorily fulfilling the functions he deemed appropriate for them, he would be able to provide a definitive answer to his basic question. The existence of one such school demonstrates that it is possible for a comprehensive school to fulfill these functions. (Actually, Dr. Conant regarded eight of the 103 schools visited by him or his staff as adequately fulfilling these three functions.)

Dr. Conant's report was published in February, 1959. A major part of the report is a series of twenty-one recommendations for improving public education. The range of these recommendations is indicated by some of their headings: "The Counseling System," "Required Programs for All," "Ability Grouping," "English Composition," "The Academic Inventory," "Homerooms," etc. In some cases, the recommendations made under these headings are very specific. For example, Recommendation 6 reads:

> The time devoted to English composition during the four years should occupy about half the total time devoted to the study of English. Each student should be required to write an average of one theme a week. Themes should be corrected by the teacher. In order that teachers of English have adequate time for handling these themes, no English teacher should be responsible for more than one hundred pupils. . . .

We thus have the following situation: A man who is a dis-

tinguished scientist, an outstanding university president, a successful diplomat, and a devoted supporter of public education in and for our democratic society is liberally supplied with funds to enable him to study a basic problem of American education. He carries out the study and writes a report which receives unprecedented publicity; approximately 200,000 copies of it were sold or otherwise distributed within six months after it was first published.

For the most part, the educational recommendations in the report would improve public education. Although I disagree with some of them and admit incapacity to evaluate others, nothing that I have to say depends upon any criticism of the educational recommendations in the report. The report itself is intelligent, reasonable, and without a trace of the hobby-horsing or ax-grinding that characterizes most books on education written for the general public. It comes at a time when it is difficult to get men of Dr. Conant's stature seriously involved in the problems of public education. What, if anything, is wrong with the situation?

Perhaps nothing—as I have described it thus far. But let us look at the way in which the report is being implemented. According to Dr. Conant: "When I first planned the study, I had in mind formulating my conclusions in such a way that they could be presented in various states to the citizens committees concerned with supporting good public education." And later he states, "Since, however, the school boards, almost without exception, do have a great degree of freedom in managing the local school, I have addressed this report *in the first instance to school board members.*" [My italics.]

In attempting to implement the recommendations emerging from his study, Dr. Conant met with school boards and citizens' committees over the entire country. He also worked with

various professional organizations, but the focus of his persuasive efforts was on the school boards.

What would have been the reaction to the procedure followed by Dr. Conant if someone had utilized it in higher education? Surely, Dr. Conant would have been the first to protest if, while he was president of Harvard, the trustees had notified him that they wanted certain changes in the curriculum and in "the requirements for admission to advanced courses" put into effect at the beginning of the school year. Presumably, these things are a professional prerogative at Harvard. I see no reason why they should not be so in public education as well—and this brings me to one of my reasons for thinking that the net impact of the report may be harmful despite the merits of its educational recommendations. The procedures used to implement the report reinforce the prevailing notion that school boards ought to decide professional matters, such as what subjects should be offered and at what grade levels.

The matter of professional autonomy is not confronted squarely in the report. Those comments which do relate to it are rather ambiguous. We read that:

> Other recommendations [those not involving a budgetary increase] concern the details of school organization and curriculum; in the first instance, these recommendations belong in the province of school administrators. . . . Some of the recommendations listed below can be put into effect at the beginning of the school year without upsetting in any way the morale of the teaching staff. Other recommendations, however, can be effective only if a majority of the teachers are convinced of their wisdom. . . . I have in mind particularly the controversial subject of ability grouping, any recommendations in regard to marking or grading, and the requirements for admission to advanced courses.

These comments are not too clear, since there is no explicit statement of what curriculum matters are for the school board

to decide and what are "details" for the professional staff to decide. Furthermore, the need for school boards to convince the teachers of the wisdom of certain changes raises some interesting questions. Teachers should be persuading school boards of the need for changes in class size, ability grouping, and requirements for admission to advanced courses; is there not something amiss when the persuading on these matters is the other way around?

To change the curriculum persuade those who have the power to change it—the school boards. In this sense, Dr. Conant's procedure is sound; there is no point in persuading the teachers first, since they could only recommend action to their school boards. But if you believe, as I do, that our most serious curriculum problems flow from the fact that teachers do not have the operating power to make the professional curriculum decisions, then you do not try to bring about changes by means of a strategy that reinforces the prevailing antiprofessional power structure of public education.

To clarify this point, consider two of the proposals in the report. Its major recommendation calls for the elimination of small high schools.

Dr. Conant states: "I should like to record at this point my conviction that in many states the number one problem is the elimination of the small high school by district reorganization." Later, he says: "I can sum up my conclusions in a few sentences. The number of small high schools must be drastically reduced. Aside from this important change, I believe no radical alteration in the basic pattern of American education is necessary in order to improve our schools." And "Unless a graduating class contains at least one hundred students, classes in advanced subjects and separate sections within all classes become impossible except with extravagantly high costs . . . [;]

the same conclusion has been reached by a committee of the American Association of School Administrators."

The fact that small schools are wasteful and that their consolidation ought to be given very high priority has been a recurring theme of textbooks in secondary education and school administration for decades. However, before analyzing the implications of this fact, let us look at one other proposal and Dr. Conant's comments concerning it. Recommendation 18 reads in part as follows:

> The school board should be ready to offer a third and fourth year of a foreign language. The guidance officers should urge the completion of a four-year sequence of one foreign language if the student demonstrates ability in handling foreign languages. . . . The main purpose of studying a foreign language is to obtain something approaching mastery of that language. And by mastery is surely meant the ability to read the literature published in the language and, in the case of a modern language, to converse with considerable fluency and accuracy with an inhabitant of the country in question.

Dr. Conant then makes the following comment:

> I have met no teachers of foreign language who felt that anything approaching mastery could be obtained by the study of a foreign language for only two years in high school, nor have the students felt that two years of study had given them any real working knowledge of the language . . . [;] the foreign language teachers with whom I talked were almost unanimous in agreeing that two years were quite insufficient and that a very small residue, if any, was left in the student's mind after such an exposure.

Dr. Conant does not claim originality for these recommendations. Indeed, it is precisely because they are not original with him that the attention given them demands our own attention.

John Gardner, president of the Carnegie Corporation, says about the report: "If the reader . . . is in the mood to roll up

his sleeves and say 'precisely what can we do tomorrow morning to improve our schools?' this is the book."

In view of the fact that the major recommendations of the report have been made for years by professional educators, it seems to me that some important questions are going unanswered—perhaps because unasked—in this situation.

Take Mr. Gardner's reader who is "in the mood to roll up his sleeves" and go to work "tomorrow morning to improve our schools." Why were his sleeves not rolled up ten or twenty years ago, when the reforms now recommended by Dr. Conant were first made by the professionals in his community?

Is it desirable, is it necessary, that school boards should have to be convinced by an outside figure of great prestige to carry out reforms advocated by the overwhelming weight of professional opinion in their own community?

Mr. Gardner goes on to say: "Hundreds of thousands of Americans all over the country are concerned about their schools, wondering what to do about them, seeking answers, hoping for guidance. Mr. Conant has provided that guidance." I yield to no one in my estimate of what one man can do, in education or any other field. Nevertheless, I am skeptical of the man-on-horseback approach implicit in the preceding quotation.

I suggest that a fruitful course for a foundation to follow would be to analyze the reasons why those proposals in the Conant report long advocated by professional opinion should have lain dormant through the years. For what it is worth, my own view is that the strategy of implementing educational reforms exemplified by the Conant report has so weakened the power and prestige of educators that what they say no longer counts.

The dangers of this strategy will be more evident if we pay due regard to the specificity of the recommendations in the report. The report points out that it takes three or four years of study to master a foreign language. This can change. Teachers may find it feasible to provide short periods of intensive study which materially shorten the over-all time needed to master a foreign language. The ease of travel to foreign countries, international television, or new developments in teaching may also have this result.

In short, it may be that two years will be deemed sufficient for the mastery of a foreign language. But if so, where will Dr. Conant be? He specifically points out the probability that some of his recommendations may need revision in five or ten years. But this misses the point.

If school boards do not *now* accept the recommendations of their professional staff concerning the amount of time needed to master a foreign language, what reason is there to believe that they will be more willing to accept such recommendations in the future?

The Conant report is an eloquent plea for the continuation and strengthening of comprehensive schools on the grounds that such schools are an essential bulwark of social cohesion in the United States. It is nonetheless clear that Dr. Conant himself is (or was) far behind professional opinion on the extent to which these schools lack social cohesion and contribute to the stratification of American society. He writes:

> Somewhat to my surprise, I found that almost without exception those students elected to the student council or as officers of the class were in the group of the more academically able students who were preparing to go on to college. Such was the case in each of these schools, although the reader must remember that this collegebound group was always in the minority.

Now this is itself a surprising statement. Educational research going back at least twenty years has demonstrated that college preparatory students tend to monopolize class offices and other prestigeful positions far out of proportion to their numbers. These students are also favored in grading, in discipline, and in the various academic, musical, and literary contests which characterize large comprehensive schools. These points are made in many textbooks in the sociology of education and in secondary education. Principals of comprehensive high schools always expect to encounter this phenomenon.

One of the most widely read books in the country in the fields of sociology, adolescent development, and education is *Elmtown's Youth*, by A. B. Hollingshead (New York: John Wiley & Sons, 1948), which devotes considerable attention to the phenomenon which surprised Dr. Conant.

The favored position of children from the upper classes in comprehensive schools obviously weakens Dr. Conant's thesis that such schools are a sort of melting pot for children from different social classes. The children from different socioeconomic classes may be together physically in the comprehensive school, but they are not necessarily getting to know and like one another better as a result.

These considerations do not necessarily invalidate the ideal of a comprehensive school. In my opinion, they only point to specific problems which must be solved in order to effectuate the ideal. But the fact that the country's leading supporter of comprehensive schools was so obviously unaware of important data bearing upon the ineffectiveness of these schools suggests the dangers and the futility of relying upon one man, no matter how outstanding, to provide "the" answers to complicated educational problems on a hit-and-run basis.

The question, therefore, still remains—how can we articu-

late professional opinion in the structure of public education so that it is reflected in practice within a reasonable period of time, and what strategy should be followed to achieve this goal?

FALLACIES OF THE SCHOOL-BY-SCHOOL APPROACH

Let me turn next to another strategic fallacy in the Conant report. This fallacy may be more pervasive among the public at large than among educators, but I believe that it overwhelmingly characterizes the strategic thinking of both groups. I refer to the faith in a school-by-school approach to educational reform. In Dr. Conant's words:

> The improvements must come school by school and be made with due regard for the nature of the community. Therefore, I conclude by adressing this final word to citizens who are concerned with public education: avoid generalizations, recognize the necessity of diversity, get the facts about your local situation, elect a good school board, and support the efforts of the board to improve the schools.

The plausibility of this advice, especially for parents, is obvious. The individual parent is most interested in the education of *his* child at *this* time in *this* school. Furthermore, he cannot go to Washington or to his state capitol to remedy shortcomings in his school system. His interest may be great, but his individual circumstances render such action prohibitive. Since he can affect the school system attended by his children more easily than he can a state legislature or Congress he tends to focus his educational efforts on the local school boards. These agencies alone provide immediate results.

The school-by-school (or community-by-community) strategy rests upon the assumption that local school boards have the power to bring about basic educational reforms. Unquestionably, they have the legal power to bring about some of them.

But they do not have, nor are they likely to have, the operating power to bring about many of the important reforms which are needed.

For many reasons (discussed elsewhere by us), it is no longer possible to rely upon local (and state) sources of revenue to finance the rising costs of public education. Even where substantial sources of revenue are physically located within a school district, they are frequently not available for educational purposes because of features of the tax structure not subject to local control. Furthermore, there are many communities which just do not have sufficient revenue.

The limitations of the community-by-community approach are also obvious from the standpoint of teacher education. There is a nationwide shortage of teachers in several crucial areas. This problem cannot be solved on a system-by-system basis—the various systems are simply dividing up the scarcities. No single system, except possibly the very few largest, can affect the over-all supply and demand situation. Raising salaries in one system to get certain kinds of teachers, e.g., physics teachers, merely creates a shortage of such teachers in other systems. Furthermore, raising salaries means raising taxes, and this brings us back to the financial plight of most school districts.

School boards are political creatures of the state legislatures, which can eliminate, expand, or modify the powers of these boards at any time. Some legislatures and constitutions have placed a ceiling on the tax rate that can be levied for the public schools. No matter if all the citizens in a particular district are willing to double their taxes for schools, they cannot legally do so. They must first get action at the state level to be able to act at the local level.

The limitations of the community-by-community approach

constitute one of the major problems in reorganizing small school districts in order to get schools large enough to be efficient. As Dr. Conant himself points out, where such reorganization depends on a majority vote in all the districts to be reorganized, it is often rejected by the voters of one district.

This is likely to happen if one district does not possess resources commensurate with the number of children it would contribute to the consolidated district. The citizens of the wealthier districts do not wish to pay higher taxes for the education of the children from the poorer districts. Clearly, this problem can be solved only by adopting a broader strategy than the community-by-community approach to educational reform.

In general, some type of mandatory legislation is needed at the state level to expedite the consolidation of small and inefficient school districts.

I do not wish to underestimate what a good school board can do. Neither do I wish to exaggerate it. When the standard advice given to those who work for better education is to concentrate on electing and supporting good school boards, I feel most strongly that the potential of these agencies to improve public education is being vastly overrated.

It is no answer to point to what an exceptional school board has achieved. Our attitude toward school boards must be based upon what we can reasosnably expect them to be and do, given a wide range of circumstances affecting their membership and their freedom—both legal and practical—to take action. Strategy should take into account what exceptional people do, but can it be sensibly based upon the assumption that everyone will be exceptional? Suggestions that citizens "get the facts" and "elect a good school board" have been made for a long, long time in American education, and the results are not impressive.

For these and other reasons, I disagree with the belief that the most important election for the education-minded citizen is the local school board election. In the short run, and for rather limited goals, sometimes; in the long run, the educational views of governors, state legislators, Congressmen, and presidents are more important than the views of local boards.

A governor who realizes the need for a new framework of educational controls in his state is more important than a hundred school boards, good, bad, or indifferent. A president who is aware of the national stake in public education and is prepared to take whatever federal action is necessary to protect that stake is more important to the future of public education than thousands of school boards.

Why not work for all of these things—education-minded school boards, legislators, governors, and presidents? By all means, let us do so. But let us also be clear that the priorities lie where the power lies. When you advise people to work for better schools by telling them to concentrate upon their local situation, you direct their energies to the most visible but not necessarily most important agency of educational reform. School systems operate in a context which limits what can be achieved on a purely local basis. Failure to understand this context is the reason for the sincere but misguided faith that people have in the possibilities of local solutions to educational problems.

My criticism of a community-by-community strategy should not be interpreted to mean that I favor a policy of citizen inaction. The usual modes of citizen support for public education are inefficient, sometimes even harmful, but citizen participation and support is essential for its improvement.

If, for example, the citizen is a member of the American Legion, he can resist Legion pressure on the school board to

conduct misguided essay or athletic contests. He can try to get his local post to end the Legion's systematic interference with American education on a national basis. Similarly, in their churches, unions, professional and trade associations, and other affiliations, citizens can resist the efforts of these organizations to achieve a favored place in the schools. At the same time, they can enlist the aid of these organizations in developing an effective system of public education.

To the superintendents who ask, "What should we teach?" they can say, "If you don't know, we'll hire someone who does." They can participate intelligently in school board elections; they can help even more by making constructive educational policy an important criterion of fitness for high political office. They cannot do this unless they know what is constructive; here, teachers' organizations and liberal arts colleges have failed badly. In any event, whether the citizens do these things, or many others that might be suggested, depends primarily upon what the teachers do. For this reason, let us turn to some of the strategic problems which the teachers must solve to lead the way.

THE MERGER OF THE AFT AND THE NEA

The first thing teachers should do is put their own organizational house in order. This will require a merger of the American Federation of Teachers and the National Education Association.

All teachers can and should help to achieve this goal. To do this, they must understand why this merger is essential and the basis upon which it could be accomplished. They can then support leaders who will work toward the merger and remove from office those who wish to continue the present unproductive stalemate between the two organizations.

Some educational writers have expressed the view that the competition between the two organizations is a good thing. This point of view overlooks the realities of organizational competition. With two competing organizations, attention is devoted to belittling the opposing organization instead of concentrating on the constructive work that needs to be done. The efforts of teachers are dispersed, and outsiders play one group off against the other. Quite frequently, the competition has the most disruptive effects upon a school faculty or upon the administration of a school system. A single organization by no means eliminates all organizational problems, but it is usually better than the existence of two or more competing organizations.

With imaginative leadership in either organization, the present unproductive stalemate might be ended. There is certainly a logical and constructive basis for merger. Essentially, there are two basic issues which divide the two organizations. One is the fact that the NEA has no restrictions upon administrator membership. The other is the AFT's affiliation with the AFL-CIO. It seems to me the proper resolution of these issues is so apparent that only organizational inertia and the existence of vested interests in the present situation serve to perpetuate it.

On the side of the AFT, there must be a recognition that the policy of affiliation with labor has reached a dead end and must be abandoned. Whether the AFT has the courage to face up to this fact is an open question.

(Personally, I have often wondered what AFL-CIO leaders think privately about the AFT's affiliation with the AFL-CIO. It is difficult for me to visualize any advantages to the AFL-CIO in having 55,000 teachers affiliated with it.)

With some AFT members, affiliation with the labor move-

ment has become a sacred cause instead of a means to be evaluated according to its utility in facilitating certain ends. Some members of the AFT have been passed over for promotion because of their loyalty to the organization. Many were active in the long and bitter struggle during the late 1930's and the early 1940's to expel a Communist faction. People who have been identified for many years with an organization and who have risked a great deal for it cannot be expected to abandon it casually. Indeed, I am not advocating that they abandon it at all, except under certain conditions. It is at this point that some educational statesmanship from the NEA is badly needed.

As much the larger of the two organizations, the NEA might take the attitude that any merger must be on its terms. However, such an attitude would be a grave strategic mistake. The concessions to be made in a merger cannot be based solely upon the size of the organizations to be merged. They must take into account the logic of the arguments involved and the direction of events. Grant practically every criticism made of the AFT, but you cannot escape the fact that the organization has endured because of its adherence to a principle that must eventually be recognized in teachers' organizations generally. As employees, teachers must have organizations reasonably free from domination by school administrators.

Freedom from administrator domination is not just a matter that concerns two competing teachers' organizations. It is, or ought to be, a matter of fundamental public policy. Teachers' organizations, like those of most other government employees, must be free from administrator domination. Unless such a policy is adopted and implemented, there is a danger that this country will drift into a totalitarian state. It does not make sense for the government to protect the integrity of employee

organizations in private industry by restricting managerial membership in them and then fail to provide the same protection for organizations of public employees. . . .

For the NEA to procrastinate any further in recognizing the importance of this issue could be disastrous. Collective bargaining is coming in public education, and it will require independent teacher organizations. If the NEA persists in its present policies, it is possible that the AFT will make substantial gains as collective bargaining becomes more widespread. And if AFT membership increases, it will mean the development of many more vested interests which would be opposed to a single teachers' organization. The difficulties of merging the two organizations will be increased many times over, and they are bound to dissipate their energies in fighting each other. This is why no greater mistake could be made by the NEA than to assume it should ignore the AFT merely because at this time it is approximately twelve times as large.

The terms I have outlined would enable the two organizations to merge honorably and with good grace. The AFT would be giving up only the illusory benefits of affiliation; the NEA would only be accepting a condition which will eventually be forced upon it in any case. Naturally, any merger should scrupulously respect the rights of all officers and paid staffs of the two organizations. . . .

TEACHER CONTROL OF ADMISSION TO TEACHING

With or without a merger of the AFT and NEA, teachers' organizations must give high priority to teacher control over admission to teaching. The strategic advantages of teacher control of entry would be tremendous. The professions typically exert their group strength at the point of entry. As a result,

the employer, whether a public or private one, must pay well to get the services of the professional. On the other hand, nonprofessional control of teacher certification has made it easy for people to become teachers. After the flood gates are down, the teachers try to improve their status through negotiations with school boards or through state minimum salary laws.

This is locking the barn door after the horse is stolen. It is precisely why the AFT emphasis upon collective bargaining, unaccompanied by teacher control over entry, is only half a program, and probably not the most important half at that. Collective bargaining is never very effective unless the employees have some degree of job control. The AFT apparently has yet to learn this principle, which is taken for granted in unions as it is in professional associations.

The current emphasis upon minimum salary laws and the failure of teachers to accord high priority to teacher control of entry illustrate the shortsighted strategy followed by teachers' organizations. Public opinion is easily aroused against legislation which provides adequate professional salaries. People do not like to support laws calling for specific and substantial salaries for public employees. Nevertheless, most persons who oppose high salary schedules would not get especially aroused over legislation calling for teacher control of admission to their own profession.

I do not say that there would be no opposition, but this is not the kind of thing that stirs the man on the street to determined opposition. And because teacher control of entry is inherently reasonable, a determined effort by teachers to achieve it should be successful. The teachers might very well join with other groups seeking a similar objective and coordinate their efforts to achieve a sensible framework for state licensure.

EDUCATIONAL PUBLIC RELATIONS

At the present time, educational public relations are dominated by a policy of "educating the public." In the minds of most public school personnel, "educating the public" means not to make a move before getting public approval and to respond like a Geiger counter to every shift in public opinion.

At teachers meetings one often hears exhortations to teachers to win the respect of the public. It is generally assumed that the teachers will be paid better only as they gain a larger measure of public respect. Aside from the fact that respect usually follows rather than precedes high salaries, the exhortations are typically used to justify the very things that create disrespect for teachers. Thus teachers are persuaded to accept after-school assignments without pay in order to win respect. In the gushy ideology of cracker-barrel philosophers of education, teachers must be "professional" to gain respect; being "professional" is equated with contributing your services for nothing.

"Educating the public" has also led to an ineffectual buckshot approach to educational problems. The evaluation of strategy is concerned with how many times a movie was shown, how many brochures and pamphlets were mailed out, and how many people attended how many conferences.

While there is something to be said for efforts to create a climate of opinion, this should not be a substitute for unremitting pressure on strategic individuals and agencies who have the power to take action ahead of, or even in opposition to, public opinion. A thousand PTA's convinced of the need for higher salaries for teachers are not as valuable as one congressman who knows that the organized teachers can mobilize enough votes to unseat him at the next election.

Thus far, teachers have miseducated the public very effec-

tively, by their spineless abdication of professional autonomy, by their failure to enforce high standards for entry and performance, by their political impotence, and by their moral evasion. It is time for teachers to develop different concepts of how and for what they shall educate the public.

The teachers might begin by demonstrating to politicians that opposition to the sound professional recommendations of teachers is an invitation to political disaster. The best way to conduct this kind of demonstration is to deliver the votes.

Teachers might try to educate the public to the importance of academic freedom by withholding their services where there are serious violations of it. These techniques have not been tried on a large scale, but they may be more effective than the techniques currently in use. The mass distribution of movies or literature cannot be effective while the everyday performance of teachers demonstrates that they are a weak and inconsequential group.

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MAN AND THE FUTURE

E OF EVOLUTION

By Sir Julian Huxley

A WORLD-FAMOUS SCIENTIST PEERS INTO MAN'S FUTURE AND MAKES SOME PROVOCATIVE PREDICTIONS

Man's destiny is to be the sole agent for the future evolution of this planet. He is the highest dominant type to be produced by over two and a half billion years of slow biological improvement effected by the blind opportunistic workings of natural selection; if he does not destroy himself, he has at least an equal stretch of evolutionary time before him to exercise his agency.

During the later part of biological evolution, mind—our word for the mental activities and properties of organisms—

emerged with greater clarity and intensity and came to play a more important role in the individual lives of animals. Eventually it broke through, to become the basis for further evolution, though the character of evolution now became cultural instead of genetic or biological. It was to this breakthrough, brought about by the automatic mechanism of natural selection and not by any conscious effort on his own part, that man owed his dominant evolutionary position.

Man therefore is of immense significance. He has been ousted from his self-imagined centrality in the universe to an infinitesimal location in a peripheral position in one of a million of galaxies. Nor, it would appear, is he likely to be unique as a sentient being. On the other hand, the evolution of mind or sentiency is an extremely rare event in the vast meaninglessness of the insentient universe, and man's particular brand of sentiency may well be unique. But in any case he is highly significant. He is a reminder of the existence, here and there, in the quantitative vastness of cosmic matter and its energy equivalents, of a trend toward mind, with its accompaniment of quality and richness of existence, and, what is more, a proof of the importance of mind and quality in the all-embracing evolutionary process.

It is only through possessing a mind that man has become the dominant portion of this planet and the agent responsible for its future evolution; and it will only be by the right use of that mind that he will be able to exercise that responsibility rightly. He could all too readily be a failure in the job; he will succeed only if he faces it consciously and if he uses all his mental resources—of knowledge and reason, of imagination, sensitivity, and moral effort.

And he must face it unaided by outside help. In the evolutionary pattern of thought there is no longer either need or room for the supernatural. The earth was not created: it

evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body. So did religion. Religions are organs of psychosocial man concerned with human destiny and with experiences of sacredness and transcendence. In their evolution, some (but by no means all) have given birth to the concept of gods as supernatural beings endowed with mental and spiritual properties and capable of intervening in the affairs of nature, including man.

Such supernaturally centered religions are early organizations of human thought in its interaction with the puzzling, complex world with which it has to contend—the outer world of nature and the inner world of man's own nature. In this, they resemble other early organizations of human thought confronted with nature, like the doctrine of the four elements, earth, air, fire, and water, or the Eastern concept of rebirth and reincarnation. Like these, they are destined to disappear in competition with other, truer, and more embracing thought organizations which are handling the same range of raw or processed experience—in this case, with the new religions which are surely destined to emerge on this world's scene.

Evolutionary man can no longer take refuge from his loneliness in the arms of a divinized father-figure whom he has himself created, or escape from the responsibility of making decisions by sheltering under the umbrella of Divine Authority, or absolve himself from the hard task of meeting his present problems and planning his future by relying on the will of an omniscient but unfortunately inscrutable Providence.

On the other hand, his loneliness is *only* apparent. He is not alone as a type. Thanks to the astronomers, he now knows that he is one among the many organisms that bear witness to the trend toward sentience, mind and richness of being, operating so widely but so sparsely in the cosmos. More important,

thanks to Darwin, he now knows that he is not an isolated phenomenon, cut off from the rest of nature by his uniqueness. Not only is he made of the same matter and operated by the same energy as all the rest of the cosmos but, for all his distinctiveness, he is linked by genetic continuity with all the other living inhabitants of his planet. Animals, plants, and micro-organisms—they are all his cousins or remoter kin, all parts of one single evolving flow of metabolizing protoplasm.

Nor is he individually alone in his thinking. He exists and has his being in the intangible sea of thought which Teilhard de Chardin has christened the "noösphere," in the same sort of way that fish exist and have their being in the material sea of water which the geographers include in the term "hydrosphere." Floating in the noösphere there are, for his taking, the daring speculations and aspiring ideals of man long dead, the organized knowledge of science, the hoary wisdom of the ancients, the creative imaginings of all the world's poets and artists. And in his own nature there are, waiting to be called upon, an array of potential helpers—all the possibilities of wonder and knowledge, of delight and reverence, of creative belief and moral purpose, of passionate effort and embracing love.

Turning the eye of an evolutionary biologist upon this situation, I would compare the present stage of evolving man to the geological moment, some three hundred million years ago, when our amphibian ancestors were just establishing themselves out of the world's water. They had created a bridgehead into a wholly new environment—no longer buoyed up by water, they had to learn how to support their own weight; debarred from swimming with their muscular tail, they had to learn to crawl with clumsy limbs.

The newly discovered realm of air gave them direct access to the oxygen they needed to breathe, but it also threatened

their moist bodies with desiccation. And, though they managed to make do on land during their adult lives, they found themselves still compulsorily fishy during the early part of their lives.

On the other hand, they had emerged into completely new freedoms. As fish, they had been confined below a bounding surface; now the air above them expanded out into the infinity of space. Now they were free of the banquet of small creatures prepared by the previous hundred million years of life's terrestrial evolution. The earth's land surface provided a greater variety of opportunity than did its waters and, above all, a much greater range of challenge to evolving life. Could the early Stegocephalians have been gifted with imagination, they might have seen before them the possibility of walking, running, perhaps even flying over the earth; the probability of their descendants escaping from bondage to winter cold by regulating their temperature, escaping from bondage to the waters by constructing private ponds for their early development; the inevitability of an upsurge of their dim minds to new levels of clarity and performance. But meanwhile they would see themselves tied to an ambiguous existence, neither one thing nor the other, on the narrow moist margin between water and air. They could have seen the promised land afar off, though but dimly through their bleary newtish eyes. But they would also have seen that, to reach it, they would have to achieve many difficult and arduous transformations of their being and way of life.

So with ourselves. We have only recently emerged from the biological to the psychosocial area of evolution, from the earthy biosphere into the freedom of the noösphere. Do not let us forget how recently: we have been truly men for perhaps a tenth of a million years—one tick of evolution's clock. Even as proto-men, we have existed for under one million years—less than a two-thousandth fraction of evolutionary time. No longer

supported and steered by a framework of instincts, we try to use our conscious thought and purposes as organs of psychosocial locomotion and direction through the tangles of our existence but so far with only moderate success and with the production of much evil and horror as well as of some beauty and glory of achievement. We too have colonized only an ambiguous margin between an old bounded environment and the new territories of freedom. Our feet still drag in the biological mud, even when we lift our heads into the conscious air. But, unlike those remote ancestors of ours, we can truly see something of the promised land beyond. We can do so with the aid of our new instrument of vision—our rational, knowledge-based imagination. Like the earliest pre-Galilean telescopes, it is still a very primitive instrument and gives a feeble and often distorted view. But, like the early telescopes, it is capable of immense improvement and could reveal many secrets of our noöspheric home and destiny.

Meanwhile no mental telescope is required to see the immediate evolutionary landscape and the frightening problems which inhabit it. All that is needed—but that is plenty—is for us to cease being intellectual and moral ostriches and take our heads out of the sand of wilful blindness. If we do so, we shall soon see that the alarming problems are two-faced and are also stimulating challenges.

What are those alarming monsters in our evolutionary path? I would list them as follows. The threat of superscientific war, nuclear, chemical, and biological; the threat of overpopulation; the rise and appeal of Communist ideology, especially in the underprivileged sectors of the world's people; the failure to bring China, with nearly a quarter of the world's population, into the world organization of the United Nations; the erosion of the world's cultural variety; our general preoccupation with means rather than ends, with technology and quantity rather

than creativity and quality; and the Revolution of Expectation, caused by the widening gap between the haves and the have-nots, between the rich and the poor nations. . . .

Let us remember that two-thirds of the world's people are underprivileged—underfed, underhealthy, undereducated—and that millions of them live in squalor and suffering. They have little to be thankful for save hope that they will be helped to escape from this misery. If we in the West do not give them aid, they will look to other systems for help—or even turn from hope to destructive despair.

We attempt to deal with these problems piecemeal, often halfheartedly; sometimes, as with population, we refuse to recognize it officially as a world problem (just as we refuse to recognize Communist China as a world power).

In reality, they are not separate monsters to be dealt with by a series of separate ventures, however heroic or saintly. They are all symptoms of a new evolutionary situation; and this can be successfully met only in the light and with the aid of a new organization of thought and belief, a new dominant pattern of ideas.

It is hard to break through the firm framework of an accepted belief system and build a new and acceptable successor, but it is necessary. It is necessary to organize our *ad hoc* ideas and scattered values into a unitive pattern, transcending conflicts and divisions in its unitary web. Only by such a reconciliation of opposites and disparates can our belief system release us from inner conflicts; only so can we gain that peaceful assurance which will help unlock our energies for development in strenuous practical action.

Somehow or other we must make our new pattern of thinking evolution-centered. It can give us assurance by reminding us of our long evolutionary rise; how this was also, strangely and wonderfully, the rise of the mind; and how that rise cul-

minated in the eruption of mind as the dominant factor in evolution and led to our own spectacular but precarious evolutionary success. It can give us hope by pointing to the aeons of evolutionary time that lie ahead of our species if it does not destroy itself or damage its own chances; by recalling how the increase of man's understanding and the improved organization of his knowledge have in fact enabled him to make a whole series of advances, such as control of infectious disease or efficiency of telecommunication, and to transcend a whole set of apparently unbridgeable oppositions, like the conflict between Islam and Christendom, or that between the seven Kingdoms of the Heptarchy; and by reminding us of the vast stores of human possibility—of intelligence, imagination, co-operative good will—which still remain untapped.

Our new organization of thought—belief system, framework of values, ideology, call it what you will—must grow and be developed in the light of our new evolutionary vision. So, in the first place, it must of course itself be evolutionary. That is to say—it must help us to think in terms of an overriding process of change, development, and possible improvement, to have our eyes on the future rather than on the past, to find support in the growing body of our knowledge, not in fixed dogma or ancient authority. Equally, of course, the evolutionary outlook must be scientific, not in the sense that it rejects or neglects other human activities, but in believing in the value of the scientific method for eliciting knowledge from ignorance and truth from error, and in basing itself on the firm ground of scientifically established knowledge. Unlike most theologies, it accepts the inevitability and indeed the desirability of change and advances by welcoming new discovery even when this conflicts with old ways of thinking.

The only way in which the present split between religion and science could be mended would be through the acceptance

by science of the fact and value of religion as an organ of evolving man and the acceptance by religion that religions do and must evolve.

Next, the evolutionary outlook must be global. Man is strong and successful insofar as he operates in interthinking groups, which are able to pool their knowledge and beliefs. To have any success in fulfilling his destiny as the controller or agent of future evolution on earth, he must become one single interthinking group, with one general framework of ideas; otherwise his mental energies will be dissipated in ideological conflict. Science gives us a foretaste of what could be. It is already global, with scientists of every nation contributing to its advance; and, because it is global, it is advancing fast. In every field we must aim to transcend nationalism, and the first step toward this is to think globally—how could this or that task be achieved by international co-operation rather than by separate action?

But our thinking must also be concerned with the individual. The well-developed, well-patterned individual human being is, in a strictly scientific sense, the highest phenomenon of which we have any knowledge, and the variety of individual personalities is the world's highest richness.

The individual need not feel just a meaningless cog in the social machine or merely the helpless prey and sport of vast impersonal forces. He can do something to develop his own personality, to discover his own talents and possibilities, to interact personally and fruitfully with other individuals. If so, in his own person, he is effecting an important realization of evolutionary possibility, he is contributing his own personal quality to the fulfilment of human destiny. He has assurance of his own significance in the greater and more enduring whole of which he is part.

I spoke of quality. This must be the dominant concept of

our new belief system—quality and richness as against quantity and uniformity.

Though our new idea pattern must be unitary, it need not and should not impose a drab or boring cultural uniformity. A well-organized system, whether of thought, expression, social life, or anything else, has both unity and richness. Cultural variety, both in the world as a whole and within its separate countries, is the spice of life; yet it is being threatened and indeed eroded away by mass production, mass communications, mass conformity, and all the other forces making for uniformization—an ugly word for an ugly thing! We have to work hard to preserve and foster it.

One sphere where individual variety could and should be encouraged is education. In many school systems, under the pretext of so-called democratic equality, variety of gifts and of capacity is now actually being discouraged. The duller children become frustrated by being rushed too fast; the brighter become frustrated by being held back and bored.

Our new idea system must jettison the democratic myth of equality. Human beings are *not* born equal in gifts or potentialities, and human progress stems largely from the very fact of their inequality. "Free but unequal" should be our motto, and diversity of excellence, not conforming normalcy or mere adjustment, should be the aim of education.

Population is people in the mass; and it is in regard to population that the most drastic reversal or reorientation of our thinking has become necessary. The unprecedented population explosion of the last half-century has strikingly exemplified the Marxist principle of the passage of quantity into quality. Mere increase in quantity of people is increasingly affecting the quality of their lives and affecting it almost wholly for the worse.

Population increase is already destroying or eroding many of the world's resources, both those for material subsistence and

those—equally essential but often neglected—for human enjoyment and fulfilment. Early in man's history the injunction to increase and multiply was right. Today it is wrong, and to obey it will be disastrous. The Western world, and the United States in particular, has to achieve the difficult task of reversing the direction of its thought about population. It has to begin thinking that we should aim—not at increase but at decrease—certainly and quickly a decrease in the *rate* of population growth and, in the long run, equally certainly, a decrease in the absolute number of people in the world, including our own countries.

The spectacle of explosive population increase is prompting us to ask the simple but basic question, "What are people for?" And we see that the answer has something to do with their quality as human beings and the quality of their lives and their achievements.

We must make the same reversal of ideas about our economic system. At the moment (and again I take the United States as most representative) our Western economic system (which is steadily invading new regions) is based on expanding production for profit, and production for profit is based on expanding consumption. As one writer has put it, the American economy depends on persuading more people to believe they want to consume more products.

But, like the population explosion, this consumption explosion cannot continue much longer; it is an inherently self-defeating process. Sooner rather than later we must get away from a system based on artificially increasing the number of human wants and set about constructing one aimed at the qualitative satisfaction of real human needs, spiritual and mental as well as material and physiological.

This means abandoning the pernicious habit of evaluating every human project solely in terms of its utility—by which

the evaluators mean solely its material utility and especially its utility in making a profit for somebody. . . .

The important ends of man's life include the creation and enjoyment of beauty, both natural and man-made; increased comprehension and a more assured sense of significance; the preservation of all sources of pure wonder and delight, like fine scenery, wild animals in freedom, or unspoiled nature; the attainment of inner peace and harmony; the feeling of active participation in embracing and enduring projects, including the cosmic project of evolution. It is through such things that individuals attain greater fulfilment.

As for nations and societies, they are remembered not for their wealth or comforts or technologies but for their great buildings and works of art, their achievements in science or law or political philosophy, their success in liberating human thought from the shackles of fear and ignorance.

Although it is to his mind that man owes both his present dominant position in evolution and any advances he may have made during his tenure of that position, he is still strangely ignorant and even superstitious about it. The exploration of the mind has barely begun. It must be one of the main tasks of the coming era, just as the exploration of the world's surface a few centuries ago. Psychological exploration will doubtless reveal as many surprises as did geographical exploration and will make available to our descendants all kinds of new possibilities of fuller and richer living.

Finally, the evolutionary vision is enabling us to discern, however incompletely, the lineaments of the new religion that we can be sure will arise to serve the needs of the coming era. Just as stomachs are bodily organs concerned with digestion, involving the biochemical activity of special juices, so are religions psychosocial organs of man concerned with the prob-

lems of destiny, involving the emotion of sacredness and the sense of right and wrong.

Religion of some sort is probably necessary. But it is not necessarily a good thing. It was not a good thing when the Hindu I read about this spring killed his son as a religious sacrifice. It is not a good thing that religious pressure has made it illegal to teach evolution in Tennessee, because it conflicts with fundamentalist beliefs. It is not a good thing that in Connecticut and Massachusetts women should be subject to grievous suffering because Roman Catholic pressure refuses to allow even doctors to give information on birth control even to non-Catholics. It was not a good thing for Christians to persecute and even burn heretics; it is not a good thing when communism, in its dogmatic-religious aspect, persecutes and even executes deviationists.

The emergent religion of the near future could be a good thing. It will believe in knowledge. It will be able to take advantage of the vast amount of new knowledge produced by the knowledge explosion of the last few centuries in constructing what we may call its "theology"—the framework of facts and ideas which provide it with intellectual support. It should be able, with our increased knowledge of mind, to define our sense of right and wrong more clearly so as to provide a better moral support and to focus the feeling of sacredness on fitter objects, instead of worshiping supernatural rulers, it will sanctify the higher manifestations of human nature in art and love, in intellectual comprehension and aspiring adoration, and will emphasize the fuller realization of life's possibilities as a sacred trust.

ABRIDGED. THE FULL TEXT WILL APPEAR IN
Evolution after Darwin: Issues in Evolution, © 1960.

Loopholes IN THE Patent Law

DAVID L. LADD, a lawyer, reveals how some businessmen actually use the patent law to hurt competitors

The American patent system was set up to reward and protect inventors. But some businessmen have found that they can use patents to suppress competition even where there has been no real invention.

Under the law, any patent-holder who believes that his patent is infringed may sue not only the offending manufacturer but the latter's customers as well.

Moreover, statistics show that the courts hold patents invalid more frequently than not. In reality the suing patent-holder frequently has no case against the accused transgressor.

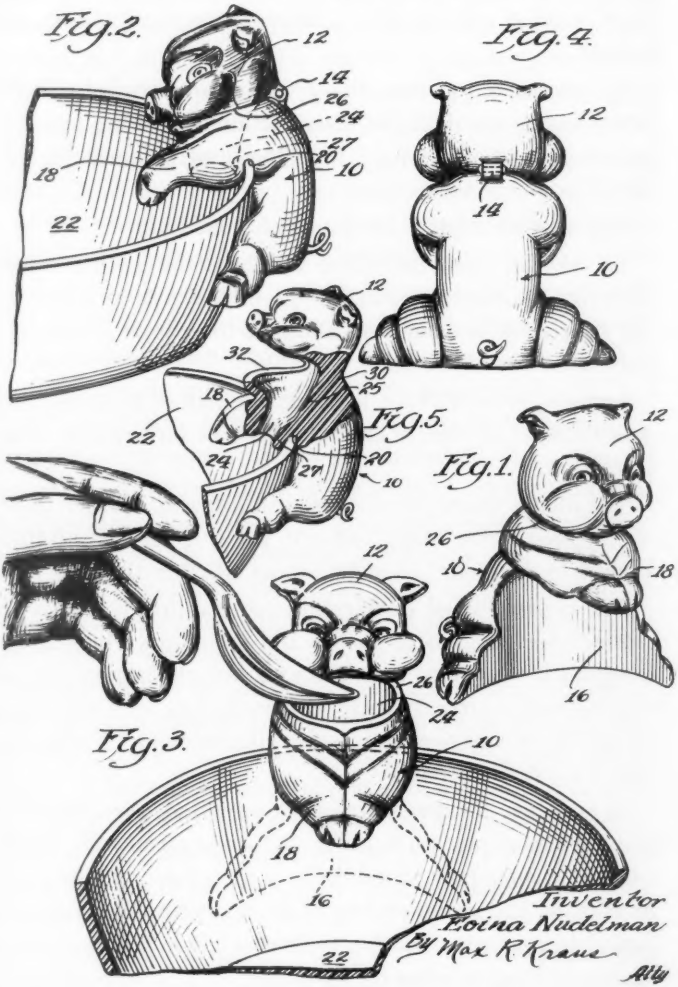
But, even if a patent is declared invalid, there can be advantages to it. Some patent owners assert their patents not to vindicate their rights but to harass competitors by costly infringement lawsuits or by the threat of such lawsuits.

Occasionally, merely airing an intention to sue will drive away potential or actual customers from a competitor's door, causing the latter irreparable financial harm.

Nov. 30, 1948. E. NUDELMAN 2,455,266

CHILDREN'S AMUSEMENT DEVICE

Filed Feb. 17, 1948



These unfair business practices under the patent law have been recognized for a long time. Back in 1941, the Temporary National Economic Committee observed that patents had "been used as a device to . . . suppress competition" in this manner.

To curb these practices, the TNEC recommended that the patent law be amended to prevent action against customers of the accused patent infringer until the suing patent-holder obtained judgment against him.

The recommendation has gone unheeded.

Yet judicial opinions, before and since the TNEC report, show that the courts are aware of this unfair business aggression and have tried to define this abuse of the patent system as a privately redressable tort.

Actually, judicial efforts to define and redress these practices have failed as a means of control. It is time for a reform of the patent law.

The root of the problem is the great disparity between standards applied by the Patent Office in granting patents and those applied by the courts in determining whether they are valid.

The constitutional justification for granting patents is to promote the progress of science and useful arts. Accordingly, Congress has provided that "whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor."

In exchange for disclosure of his invention, the inventor is granted a monopoly on it, generally for seventeen years. At the end of the monopoly period the invention passes into the public domain, and anyone is free to use it. During the monopoly period the patentee has the right to exclude all others from making, selling, or using the invention.

By statute Congress has commanded that not all innovations shall be so rewarded. Not every novelty will be accorded a patent. It must be something which has significantly advanced science or technology, something made possible by more than ordinary skill in the art. If the exact thing has been shown before—"taught," as patent lawyers say—in technical literature anywhere in the world or used successfully anywhere in the United States, no one can patent it, whether it be an article of manufacture, a process, or a new biological plant.

Even if the exact thing has not been "taught" before, still no patent is available if the new development is nothing more than an extension of what was previously known which would have been "obvious" at the time to a person "having ordinary skill in the art." That, of course, is a nebulous standard. But it is literally the standard laid down by the law.

The ambiguity of this standard of invention illustrates a point important for the layman and, indeed, for the lawyer. At critical points the law lacks the precision of science; and legal phrases which sound imposingly certain, in reality are not, but are deeply imbedded in judgment and opinion.

The courts hold patents invalid more often than not—in fact, so frequently that the statistics often shock the patent lawyer as well as the layman.

For example, of the patents adjudicated before the United States Courts of Appeal in the years 1948–54, over 62 per cent were held invalid. An additional 19 per cent were held not infringed. In sum, the courts often disagree with the decision of the Patent Office in issuing a patent and refuse to enforce it.

When one considers the standard routine for obtaining a patent, the reasons for the disparity in the Patent Office's and the courts' views become apparent.

When a client brings his invention to a patent lawyer, the lawyer himself conducts, or has conducted for him, a search of

the prior art—that is, everything which has been done in that field before. The lawyer compares his client's work with what the prior art search shows; and, if the lawyer feels that he can obtain a patent for his client, he will prepare and file an application in the Patent Office.

The patent application itself is a formidable document. It usually consists of drawings illustrating an embodiment of the invention and a fairly detailed description. The application concludes with a number of "claims," which are in reality definitions—abstract statements of what the invention is. All this is done in a special language, and it is this language which is responsible for much of the *mystique* of patents and patent law.

When the Patent Office receives the application, it conducts its own prior art search and makes its decision whether to allow or to reject any of the claims. In many cases the Patent Office will yield only after an extended exchange of arguments with the patent lawyer and after the patent lawyer has accepted claims narrower in scope than those he initially filed.

There are two things which embarrass the Patent Office's work. First, it operates under a limited budget and consequently can give any one application only limited attention.

Donald Brown, vice-president and patent counsel of Polaroid Corporation, cogently explained this difficulty to a 1955 congressional committee:

> We believe that the present shortage of Patent Office personnel makes it impossible for the examiners adequately to search the art if the work of the Office is to be kept on a reasonably current footing. For example, it is our common practice, even in fields in which we are reasonably expert, to search the art before introducing a new product commercially. These searches, which are usually limited to United States patents of the last fifteen or twenty years, may average four to five days of one man's time. An exhaustive literature search, such as we make if we are charged with infringement of another's patent, may run from ten to twenty days of one

man's time or even longer. As opposed to this, it is our understanding that the Patent Office's examiners, on the average, can devote not more than one-half day to the preparation of each Office action. . . . We do not believe that it is possible, even for a skilled examiner familiar with the art, to make an adequate search and to consider a new specification or a fairly complete amendment within a period of three or four hours. . . . We feel that today much of the technical literature is not searched by the Patent Office examiners. We know that our own searches invariably develop researches which we believe are closer than those developed by the Office.

Second, and for good reasons, patent applications are examined in the Patent Office in secrecy. Only in very exceptional circumstances can the public learn of a patent application and contest issuance of the patent. Consequently, the Patent Office sometimes does issue patents without benefit of a contest between adverse parties which would be more likely to develop all the facts.

Even when these difficulties are appreciated, there remains the inescapable conclusion that the Patent Office, at least sometimes, applies a more lenient standard of invention than do the courts. This becomes apparent in those cases where courts invalidate patents on the very prior art references which the Patent Office considered.

In some few cases this more lenient treatment can be justified. The argument rests on the premise that innovators generally, as distinguished from pioneer inventors, should be rewarded, too. But in the majority of cases the courts are more demanding. Consider two of the most famous patent decisions by the Supreme Court in recent years—*Great Atlantic & Pacific Tea Co.* v. *Supermarket Equipment Corp.* and *Crest-Specialty* v. *Trager.*

In the *A. & P.* case the Supreme Court invalidated the Turnham patent on a piece of equipment now familiar to every supermarket customer. It is a simple device, a sliding pusher

mounted on the checkout counter. As a clerk checks out the customer's groceries, the next customer places his purchases inside the pusher. When the second customer's turn comes, the clerk pulls the entire collection of groceries forward by sliding the pusher. The invention achieved great commercial success and an unprecedented efficiency in supermarket operation. But the Supreme Court held the patent invalid, even though two lower courts had held the Turnham patent valid and infringed.

Another interesting example is the *Crest-Specialty* case—the so-called "piggy-feeder" case. The patent there covered a small spout in the shape of an animal attached to the side of the baby's plate. A parent, trying to feed a resisting child, can spoon food into the animal-shaped spout (the food is returned to the plate through the spout) and urge the child to imitate. A federal court of appeals held that patent valid and infringed. The Supreme Court handed down an opinion famous for its terseness: "Reversed."

Such inventions do not satisfy the severe standards of invention upon which the courts insist. But the issuance of a patent in such cases serves to reward valuable innovations which cannot be rewarded any other way. For the patentee is in a position to bargain—to sell the patent, to grant licenses yielding him royalties, and to collect his reward. There is no other effective way.

Unfortunately, even patents so weak that courts will almost surely strike them down, sometimes contemptuously called "zombies" or "scarecrows," can be used as instruments of commercial intimidation.

The costs of patent lawsuits are so high that merely being sued can sometimes overwhelm a defendant quite as much as losing, regardless of whether the patent is good or not.

The vast majority of patent-infringement suits cost each side

more than $10,000; and it is not uncommon for the cost to reach into six figures.

Allen B. DuMont, president of DuMont Television Corporation, testified at the 1955 Senate hearings:

> The way the patent system works out in many cases—and I have not any suggestions for improving the thing—but it has happened that many times in the past the corporation with a large group of patents can put a smaller company out of business, not because he does not have good patents, but simply by suing him on the patent and losing the suits, but costing the particular company $25,000 or $50,000 to defend these suits. I know of cases specifically where that has happened. And I think it is pretty much of a general practice where if you have a large group of patents that may not apply to the particular companies, but they can enforce the patents, by costing the smaller companies money that they cannot afford in lawsuits.

Confronted with a patent-infringement suit, the defendant has several alternatives. He may discontinue production of the accused item and thus perhaps lose his investment in developing and marketing it. He may take a license under the patent (if the patentee will offer a license) and either absorb the royalty or add it to the price of his product. Or he may buy the patent if the patentee will sell it and if he has the money. His remaining and expensive alternative is to fight the lawsuit.

The problem is more serious where the patent owner makes his accusations of infringement not against the offending manufacturer but against the manufacturer's customers. Even though the patent may eventually be held invalid, the accusations can intimidate the trade, which simply does not want to become involved in a lawsuit, damage the defendant's good will, and deprive him of business rightfully his.

The courts have repeatedly held that a patent owner may give notice to the trade that he believes his patent infringed. Direct threats of lawsuits against customers are not uncom-

mon. Patent owners sometimes circularize the trade with letters, alleging that certain articles infringe and thus putting the trade on notice that anyone who sells the item will be liable. Less directly, the patent owner may publish a general notice in a trade journal or at a trade show, or salesmen may make accusations of infringement on their rounds.

The customers may discontinue all sales and liquidate or return their inventories of the accused goods. Or the customers will demand an indemnity from the manufacturer to save them harmless from all damages and to defend any lawsuit.

It would be logical, as the TNEC recommended in 1951, to require the patent owner to move first against the allegedly infringing manufacturer before suing or threatening the manufacturer's customers.

Even before the TNEC recommendation the courts had tried under traditional concepts to control these business abuses.

A famous case in which this abuse of patents was analyzed and in which relief was granted was that of *Emack* v. *Kane*, in a Chicago federal court in 1888.

Emack and Kane, competitors, both manufactured and sold noiseless slates used by school children. Kane widely circulated the trade, accusing Emack's slates of infringement, and brought three infringement suits against Emack's customers. In each of the three, Emack took over the defense for his customers, and Kane thereupon voluntarily withdrew his case, avoiding a showdown. Emack then sued to restrain Kane from sending out accusing circulars, and the court granted the relief.

Judge Blodgett knew that he was dealing with an uncommon kind of lawsuit. He acknowledged the necessity of distinguishing earlier precedents which forbade an injunction or "prior restraint" against slander. This he accomplished by drawing a

distinction between "mere personal slander or libel" and injury to property:

> It shocks my sense of justice to say that a court of equity cannot restrain systematic and methodical outrages like this, by one man upon another's property rights. . . . Redress for a mere personal slander or libel may perhaps properly be left to the courts of law, because no falsehood, however gross and malicious, can wholly destroy a man's reputation with those who know him; but statements and charges intended to frighten away a man's customers, or intimidate them from dealing with him, may wholly break up and ruin him financially, with no adequate remedy if a court of equity cannot afford protection by its restraining writ.

The *Emack* case was an important and courageous response to a real wrong. It is an important precedent to this day.

But the applicability of that decision has been limited to cases in which it can be proved that the patent owner has made his threats in bad faith. For practical purposes this means that a patent owner can be held liable for illegal business aggression in very few cases. He can very seldom be held guilty of bad faith because of his own admission. Because the interpretation of a patent and the issues of patent validity and infringement are highly subjective and reached only after skilled professional analysis and judgment, courts are rightly reluctant to impute bad faith.

In any event, prevention here would be more certain and more effective than cure. And the simple legislative change recommended by the TNEC would prevent harassment of the trade and largely confine patent disputes to those who are most directly concerned—the patent owner and the offending manufacturer.

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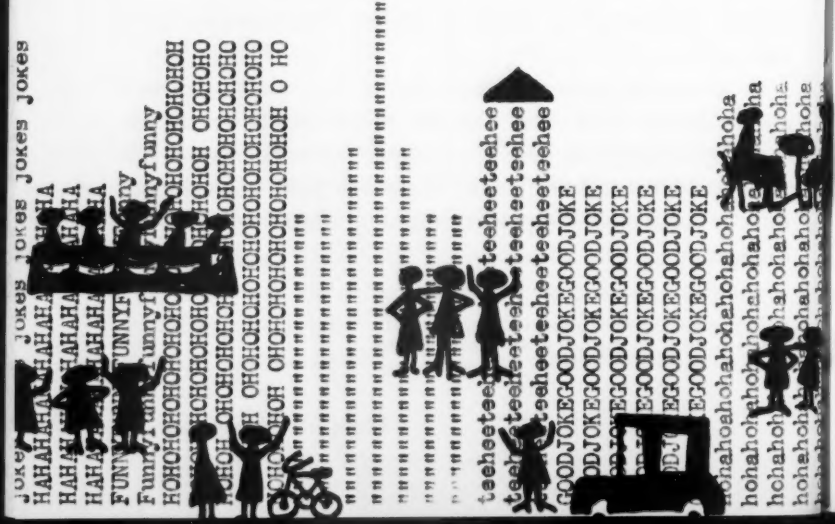
Big city folklore

BY RICHARD M. DORSON

The urbanite may be a bit startled to discover that when he passes on a joke he's being one of those quaint perpetrators of folklore!

For two and a half centuries the American people were predominantly agricultural and rural, a nation of husbandmen. The city served as a marketplace for the countryside. Northerners and southerners alike tilled the soil. The outdoor occupations of lumbering, mining, cattle-raising, sailing before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the mast, loomed large in the economy. All these conditions appeared propitious for folklore, whose students regarded the hinterland as its proper habitat.

Then in the decades following the Civil War, the center of gravity rapidly shifted from country to city, from farm to factory, from old-fashioned ways to new-fangled inventions. A society of hustle and bustle took over the stage; the organization man succeeded the frontier individualist; the tradition-directed pockets of American life dwindled before the onward march of the other-directed generation. How in the face of mobility, technology, mass media and mass conformity could folk traditions breathe and survive? And could one speak of "modern" folklore when by definition folklore must have demonstrated its ability to live among human beings for a considable time?

Folklorists have not attempted to answer these questions, tacitly assuming that the mass culture of contemporary America is traditionless. Yet, paradoxically, vast bodies of folklore have coagulated in the midst of urban industrial America, and intimately touch the lives of city dwellers, college youths, and service men and women.

Because the wonder tale and the animal fable have so preoccupied the scholars, no one has pointed out that the twentieth-century American is a tremendous storyteller and story-listener. He specializes in jokes, snappy and drawn-out, lily white and darkly off-color. They cover the major themes of modern life—religion, politics, business, as well as sex—and they are told incessantly, in private parties and at public gatherings. All age groups and both sexes relish jokes. At social get-togethers, old friends loyally tell each other the latest good one, and new acquaintances break the ice with a gag. One funny story automatically evokes another, and the swap session is under way: in the office, the car pool, the Pullman smoker, the

convention hotel, at the cocktail party, the lodge luncheon, the church supper. In the Madison Avenue culture of the soft sell, with its premium on being-one-of-the-boysmanship, every personage deals in public relations, and every public speaker must relax his audience with laugh-provoking jests. The college professor, putting on a show for his tuition-paying clients, sandwiches in dabs of learning between tasty anecdotes. The insurance salesman softens his client with a belly laugh. Politicians, ministers, bankers, executives, and fund-raisers, all must turn storyteller and pray for a laugh. "That reminds me of a little story," begins the after-dinner speaker, and the audience, glutted with creamed chicken and peas, sinks back torpidly waiting the signal to participate with forced guffaws in the rigid ritual of American banquetry. A rabbi, an educator, and a sales promotion manager of my acquaintance maintain elaborate files of comic anecdotes to insert in speeches.

President Conant of Harvard, whose address to his first graduating class, among whom I was numbered, left some doubt as to his staying power, had turned into a poised and fluent platform humorist when I heard him again fifteen years later. Among the string of stories and anecdotes he unreeled to a summer school convocation was included the witticism, apropos of the revolutionary decision permitting Radcliffe girls to attend classes with Harvard students, that not Harvard but Radcliffe was coeducational. Later I read the same story in *Newsweek* attributed to President Pusey, who may have inherited his predecessor's story files along with his august position.

The objection will certainly be made that contemporary American jokelore owes much to the mass media of radio, television, and journalism, and cannot properly be called an oral folk tradition. This objection will not stand up before closer inspection. Much jokelore—like folklore in general—is obscene,

and so is barred from the mass media. Vaudeville and literary styles often impose special requirements on their material that differ from the needs of oral folk style. A joke has to be tailored to Jack Benny's personality, by his highly paid gag-writers. On the other hand, radio comedians like Bob Burns and Sam Levenson had indeed dipped into their own personal knowledge of folk humor in the Ozarks hills and on New York's Jewish Lower East Side. The folk can on occasion feed the mass media, and equally the media can feed back into oral lore, but a selective process is at work on both sides; folk and mass culture coexist peaceably and on friendly terms. The joke one tells at a party is much more frequently a good one the teller has heard than one he has read; he remembers the gestures, intonation, delivery of the previous raconteur along with the punch line, but all these personal touches are lacking in print, invisible on radio, and contrived on television. Finally we can document the unsuspected antiquity of a good many current jokes. The *Reader's Digest* and the jokebooks pick up old chestnuts *after* they have aged and actually furnish proof of their oral fame. Nor do good stories cease to be told in their original circles once they have lodged in print. Jokebooks are tiresome to read, but fresh, live, crackling jokes are endless fun to hear.

One example must here suffice. A story of great popularity in our present society revolves around a boastful man who claims he knows all the important people worth knowing. This boaster goes by different names; one is Harry Garrett. A skeptical friend challenges Harry to make good his contention. Harry calls on Roosevelt in Washington and Churchill in London, who slap him cordially on the back. Finally he flies to Rome to see the Pope and appears on the balcony with him overlooking St. Peter's Square, where His Holiness is about to bless a vast assembled multitude. Harry's friend, swallowed up

in the crowd below, peers up at the two remote, dim figures and then asks an Italian beside him who they are. "I don't know who the fellow with the beret is," the Italian replies, "but the one alongside him is Harry Garrett."

This story is told with innumerable variations. Sometimes it is given in Jewish dialect, and The Man-Who-Knows-Everybody is a Jewish merchant. The names of the prominent personalities change—Eisenhower has begun to replace Roosevelt —save for the Pope, around whom the climax and the punch line center. A history professor who first related the yarn to me included Mussolini with the Pope in the final scene, thus dating his version twenty years back to his college days in Brooklyn. My sales promotion friend from General Motors used his rendition on his auto dealers, to underscore the techniques of salesmanship through contacts. The story has traveled. In the Philippines it is attached to the scapegrace culture hero Juan Pusan; I heard it given at a party in Tokyo by an American serviceman; it is known in Great Britain with reverse English. A humble Irishman receives invitations to visit the priest of his parish, the bishop of his diocese, and finally the Pope at the Vatican, with the customary denouement. But instead of proclaiming his self-importance, he reiterates his unworthiness.

This is a modern American folktale. Its appeal lies in a comic exaggeration of American business values: getting ahead by knowing the right people, by having "contacts" in high places. Where in the British version the hero is a shrinking violet, in the American examples he is a loud and self-confident blowhard. Harry Garrett is indeed America's supersalesman, the Yankee peddler updated and slickened with twentieth-century know-how.

If jokelore has won a stable twentieth-century audience, pushing to the side its rival story forms from earlier eras, jokes themselves flutter in the breezes of fashion. In the last thirty

years we have seen the mysterious emergence and recession of several joke cycles: the idiocies of little Audrey and the little moron; the long-drawn-out pointlessness and unbearable pun-lines of the shaggy dog story; the grisly humor of little Willie verses and "sick" jokes ("Otherwise how did you enjoy the play, Mrs. Lincoln?"). The fads come and go, but the relish for the pithy comic story remains an essential element of modern living.

City folk all know about jokes, even if they have not considered them as folktales, but they are unaware of another kind of traditional narrative which crosses their tongues. The legend —the story which never happened told for true—has anchored itself in the metropolis in urban guises. Certain stories will traverse the country, acquiring local details in each new city, and circulating among sophisticated city-dwellers as an extraordinary event, whose accuracy no one doubts. Such legends fasten particularly onto the automobile, chief symbol of modern America. In the tale of The Ghostly Hitchhiker, a fair young maiden signals for a lift from two youths returning home from a dance. They let her into the back seat and drive to the address she requests. On arriving, they discover the back seat is empty. In perplexity the lads knock on the door of the girl's supposed home, and explain to the gray-haired lady who answers what has happened. She beckons them to follow her into the living room and points to a framed picture of a young girl, whom they immediately recognize as their hitchhiker. "This is my daughter," announces the old lady gravely. "She died in an accident on the corner where you met her, six years ago. Others have had the same experience as you."

Sometimes one of the youths lends the shivering girl a coat, which she takes with her into her house. He calls back the next day to retrieve his coat, and finds it wrapped around the tombstone of the long-dead girl.

The "Ghostly Hitchhiker" has been reported over one hundred times, and has been analyzed into four distinct subtypes. It is found as far as Hawaii, where a rickshaw supplants the auto, and is traced back to the nineteenth century, in America, Italy, Ireland, Turkey, and China, with a horse and wagon picking up the benighted traveler.

Another automobile legend, "The Death Car," first came to my attention in 1944, through the casual reference of a colleague in Lansing, Michigan. He said the Buick dealer downtown had been receiving numerous telephone calls about a second-hand car in which a man had died, and which was supposedly available for fifty dollars, because the death smell could not be removed. This was in wartime, when the automobile factories had gone into tank production, and no new cars were being made. Nonplussed at the phone calls, the dealer could only deny knowing anything about such a car.

Subsequently I learned that the same rumor had spread through many other cities, chiefly in Michigan. In every instance the person who related the story believed a Death Car had been offered for sale cheaply, and sometimes had even attempted to locate and purchase it, but never had anyone actually seen and smelled the automobile. Some students were highly indignant when I pointed out their accredited report as an example of a modern legend in our own midst. Meanwhile the variants accumulated in my archive, referring to different cities, different makes of car (though Buick predominated), different sales prices, and different causes of death. The driver had been shot at the wheel by a dude hunter in northern Michigan during the deer-hunting season; he had locked himself in his garage and inhaled carbon monoxide from the car engine; he had perished from thirst crossing the California desert when his car ran out of gas. Always some time elapsed before the

automobile and the corpse were found, hence the pervasive stench of death.

In 1953 I was collecting Negro folklore in the tiny community of Mecosta in central Michigan, where a colony of colored people had settled on the sand barrens shortly after the Civil War. Called on to speak on folklore before the crowd that gathered on Old Settlers Day, I related the case of the depreciated Buick, as an instance of contemporary folklore. That evening some of the young fellows pulled me aside and politely explained that the incident had occurred in their town. A white man named Demings, who owned a 1929 Model-A Ford, committed suicide in it in 1938, after his girl, Nellie Boyers, had a spat with him on a date. He chinked up all the cracks under the seat and on the floorboards with concrete, and then sniffed a hose he had connected to his tailpipe, while the motor ran. This was in August, and the car and the body were not found until hunting season in October. A guide kept returning to the spot where Demings had pulled the car off the road into the brush, and seeing the car would say, "That fellow's always hunting when I am." Finally he investigated.

This Model-A was painted all over with birds and fish, and was quite an eye-catcher. A used-car dealer in Remus sold the car to Clifford Cross, who tried every expedient to eradicate the smell. He reupholstered and fumigated the interior, in vain, and finally had to drive around in midwinter with the windows wide open. At length he turned the car in for junk.

I talked with Clifford Cross and his friends who had ridden in the Ford. Here was the first verified case of the Death Car. Did this modern big-city legend originate with an actual incident in a hamlet of two hundred people in a rural Negro community and by the devious ways of folklore spread to Michigan's metropolises, and then to other states? Unlikely as it seems, the evidence from many variants, compared through

the historical-geographical method of tracing folktales, calls for an affirmative answer.

In recent years a street in Detroit has gained the reputation of being haunted. Different streets in several sections of the city are named and the details vary, but all accounts agree that a little girl was struck and killed by a hit-and-run driver, and that ever since cars driving over that street hear bumps from the child's body dragging behind the fender. Some say that one of her arms was cut off and that the arm is thumping against the doors of passing cars. Others ascribe the bumping noise to a curse placed on the road by the mother (or the father). In several versions the girl was riding a bicycle when the speeder ran her down, and she knocked vainly on his door to attract his attention, before losing her balance and falling under the wheels of the car. So many drivers heard the knocks that complaints reached the Detroit Department of Roads, who tore up and repaved the street, but the knocks continued. The legend reached the Detroit papers, and curious drivers thronged the street, causing so much traffic that a policeman had to be stationed there. A number of my students drove down the street in question, and all without exception reported the thumps. Some suggested natural explanations, such as air pockets in the cement or cracks in the pavement. The legend has traveled to nearby Ann Arbor, Michigan, and Toledo, Ohio.

Rumors spread about remarkable inventions which would improve automobiles. A carburetor that will give fifty miles to the gallon is being kept off the market by the big oil companies. But an experimental model inadvertently slips into a customer's hands, who informs his dealer with astonished delight about the fine mileage he has been getting. Hastily the dealer offers another car in exchange, saying this model was not intended for sale. Similar stories deal with the tire that will never wear out, and the razor blade that will last forever.

Department stores as well as automobiles attract modern legends. Certain famous stores, like the lavish Nieman-Marcus in Dallas, grow into public institutions as well as merchandise marts and acquire a legendary aura. Tales circulate of the princely shopper who purchased three vicuña coats at one time, and of the oilman who ordered an electric comforter for his pet lion. Other stories go the rounds from Macy's in New York to Hudson's in Detroit to Marshall Field's in Chicago. A well-dressed dowager pays for a small purchase with a hundred-dollar bill. The clerk takes it to the cashier to be checked, and the dowager screams her indignation. The bill is good, and milady stalks off in a huff. Next day she returns to the same counter, presents another hundred-dollar bill for a trinket, and this time is promptly given her change by the abashed clerk. But this bill is counterfeit.

A ubiquitous department store legend concerns the Dead Cat in the Package. Intending to dispose of her deceased pet, an elderly spinster wraps Tabby up in brown paper and goes downtown. She tries to leave the package in a street car, but another passenger returns it to her. She is about to throw it in a garbage can when she sees a policeman eying her suspiciously. Finally she enters a department store, and while making a purchase, has her parcel stolen by a shoplifter. The store detective, noticing the theft, immediately instigates a search. At length the shoplifter is discovered in the ladies' room, in a hysterical condition, with the dead cat on her lap. In some versions, the old lady returns home without having been able to dispose of the package, opens it for one last look at pussy, and finds a leg of mutton.

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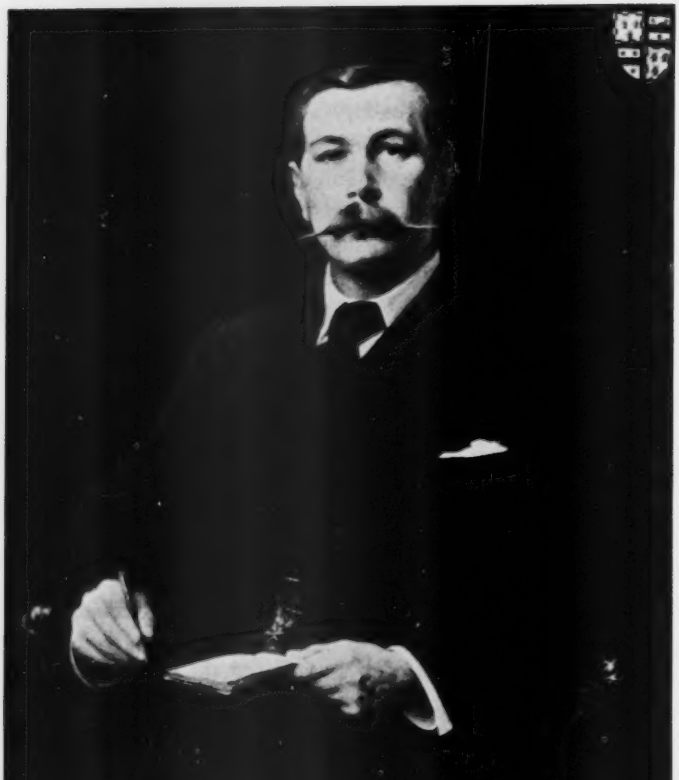
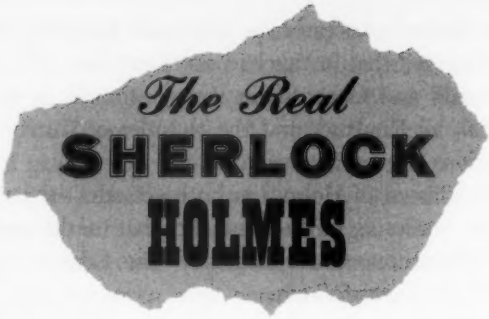


Sir Arthur Conan Doyle, Holmes's creator, actually was called upon to play the role of his imaginary detective, and sometimes he accepted the challenge



By VINCENT STARRETT

But one must drop at last the happy pretense and admit that Sherlock Holmes is dead. And being dead yet liveth. The paradox is complete; the tale is ended. The most famous fathomer of the modern world has gone upon his final quest, the most mysterious of all his strange adventures.

He died July 7, 1930, at his home in Crowborough, Sussex—he called it "Windlesham"—in the person of the man who had created him. For true as it may be that the model for the immortal detective was Dr. Joseph Bell of Edinburgh, there is no doubt that the real Holmes was Conan Doyle himself. In innumerable ways throughout his life of extraordinary service the British novelist proved the truth of that controversial matter. From first to last—as student, physician, writer, spiritualist, and prophet of the war—he was always the private detective, the seeker after hidden truths, the fathomer of obscure mysteries, the hound of justice on the trail of injustice and official apathy.

It was inevitable that the author of the Sherlock Holmes stories should often be called upon to enact the role of his imaginary detective, and sometimes he accepted the implied

challenge. Twice in his career he undertook fatiguing causes because he believed that justice had not been done. The cases of George Edalji and Oscar Slater were notorious in their day. They shook all England, and the thunder of Conan Doyle's denunciations crossed the Atlantic.

There is a flavor of Holmes in both episodes—that pinch of the bizarre, bordering on the fantastic, that marks most of the fictional adventures. Chronologically, the Edalji case stands first. The facts are as follows:

George Edalji, a young law student, was the son of the Reverend S. Edalji, a Parsee, vicar of the Anglican parish of Great Wyrley, whose wife was an Englishwoman. The vicar was a kindly and intelligent man who performed his churchly duties with fidelity; his spouse was an excellent wife. Their son, the half-caste George Edalji, was a young man of irreproachable character, an admirable student who had won the highest honors in his legal studies. However, the situation was unfortunate. "How the vicar came to be a Parsee," wrote Conan Doyle, "or how the Parsee came to be the vicar, I have no idea. Perhaps some Catholic-minded patron wished to demonstrate the universality of the Anglican church. The experiment will not, I hope, be repeated, for though the vicar was an amiable and devoted man, the appearance of a coloured clergyman with a half-caste son in a rude, unrefined parish was bound to cause some regrettable situation."

The family became the target of considerable local malice and was for a time subjected to a veritable broadside of anonymous letters, many of them "of the most monstrous description." Shortly thereafter an epidemic of horse-maiming broke out, and these outrages lasted for a considerable period. The police accomplished next to nothing until popular clamor forced an activity; then a hurried investigation was made, and George Edalji was arrested for the crime—that is, for the crime

of horse-maiming. The principal evidence against him was found in certain of the anonymous letters, in which the writer hinted at a knowledge of crimes involving horses. It was asserted that George Edalji had written the letters which for so long had plagued his family.

This evidence, as later pointed out by Conan Doyle, was incredibly weak; yet the police, "all pulling together and twisting all things to their end," secured a conviction, and the prisoner was sentenced to seven years' penal servitude. This was in 1903.

It was not until late in 1906 that Sir Arthur heard of this somewhat obscure case; then a statement of it in an unimportant journal caught his eye. "As I read," he wrote later, "the unmistakable accent of truth forced itself upon my attention and I realized that I was in the presence of an appalling tragedy, and that I was called upon to do what I could to set it right." This included a careful reading of everything he could obtain bearing on the case, a study of the trial record, a visit to the family of the condemned man, and a tour of investigation over the scene of the several crimes. Early in 1907 he began publication of a series of articles analyzing the evidence, and shortly England and the English-speaking world were ringing with the wrongs of George Edalji.

In his autobiography Sir Arthur wrote:

> If the whole land had been raked, I do not think it would have been possible to find a man who was so unlikely, and indeed so incapable of committing such actions. Nothing in his life had ever been urged against him. His old schoolmaster with years of experience testified to his mild and tractable disposition. He had served his time with a Birmingham solicitor, who gave him the highest references. He had never shown traits of cruelty. He was . . . devoted to his work . . . and he had already at the age of twenty-seven written a book upon Railway Law. Finally, he was a total abstainer, and so blind that he was unable to recognize anyone at the distance

of six yards. It was clear that the inherent improbability of such a man committing a long succession of bloody and brutal crimes was so great that it could only be met by the suggestion of insanity. There had never, however, been any indication even of eccentricity in George Edalji. On the contrary, his statements of defense were measured and rational, and he had come through a series of experiences which might well have unhinged a weaker intellect.

One hears the familiar voice of Sherlock Holmes himself in such a statement.

It had been charged at the trial that Edalji had committed the mutilations for which he was being tried at some time in the evening. The prisoner was able to prove an unshakable alibi, however, so the police dextrously shifted ground and advanced a new theory—to wit, that the crimes had been committed in the early hours of the morning. As against this, it was shown that George Edalji slept in the same room as his father, the Parsee vicar, who not only was a light sleeper but had the habit of locking the door of the chamber each night before he retired. The vicar swore that his son had not left the room during the night.

"This may not constitute an absolute alibi in the eye of the law," comments Sir Arthur dryly, "but it is difficult to imagine anything nearer to one unless a sentinel had been placed outside the door all night."

But the defense of Edalji was weakly conducted. As far as Conan Doyle was able to discover, no mention ever was made of the fact that the prisoner was virtually blind—except in a good light—while between his home and the scene of the mutilations stretched the breadth of the London and Northwestern Railway, a complex expanse of rails and wires and other obstacles, with hedges on either side, difficult enough for any man to pass in daylight.

All of which, and much more, was set forth by Sir Arthur in his indignant article; and so great was the storm he stirred up that a government committee was appointed to examine and report. The finding, when at length it came to hand, was a compromise. The committee was severe enough about the condemnation of Edalji and could find no evidence to associate him with the crime, but it clung stubbornly to the old theory that he had written the anonymous letters (which were in two handwritings) and had been, therefore, himself contributory to the miscarriage of justice. Edalji was freed but was denied compensation for his long incarceration.

"A blot upon the record of English justice," Sir Arthur called it in his comment on the report, and he added: "It is to be remembered that the man was never tried for writing the letters—a charge which could not have been sustained—so that as the matter stands he has got no redress for three years of false imprisonment, on the score that he did something else for which he has never been tried."

But Sir Arthur in his Sherlockian explorations at Wyrley had found what seemed to him a direct clue to the writer or writers of the letters and also to the identity of the mutilator or mutilators. In *Memories and Adventures* he tells us:

> I became interested, the more so as the facts were very complex and I had to do with people who were insane as well as criminal. I have several letters threatening my life in the same writing as those which assailed the Edaljis—a fact which did not appear to shake in the least the Home Office conviction that George Edalji had written them all. . . . The mistake I made was that having got on the track of the miscreant, I let the police and the Home Office know my results before they were absolutely completed. There was a strong prima facie case, but it needed the good will and the cooperation of the authorities to ram it home. That cooperation was wanting. . . . The law officers of the Crown upheld their view that

there was not a prima facie case. . . . Let me briefly state the case that the public may judge. I will call the suspect "X." I was able to show:

1. That "X" had shown a peculiar knife or horse-lancet to someone and had stated that his knife did the crime. I had this knife in my possession.
2. That this knife or a similar knife must have been used in some of the crimes, as shown by the shallow incision.
3. That "X" had been trained in the slaughter-yard and the cattle-ship, and was accustomed to brutal treatment of animals.
4. That he had a clear record both of anonymous letters and of destructive propensities.
5. That his writing and that of his brother exactly fitted into the two writings of the anonymous letters. In this I had strong independent evidence.
6. That he had shown signs of periodical insanity, and that his household and bedroom were such that he could leave unseen at any hour of the night.

There were very many corroborative evidences, but those were the main ones, coupled with the fact that when "X" was away for some years the letters and outrages stopped, but began again when he returned. On the other hand, when Edalji was put in prison the outrages went on the same as before.

A very workman-like summary, and worthy of Sherlock Holmes at his best. It may be added that Sir Arthur later learned that the individual referred to as "X" had been convicted a number of times and for a number of crimes, including arson, theft, and damage. Nothing ever was done for Edalji, however, after his release—except by individuals. "He came to my wedding reception," Conan Doyle has recorded, "and there was no guest whom I was prouder to see."

The Slater case, the celebrity of which was greater than that of George Edalji, came to the novelist-detective as a result of the earlier investigation. It was assumed by Slater sympathizers

that what Sir Arthur could do for one man he could do for another. "I went into the matter most reluctantly," he confesses in his autobiography, "but when I glanced at the facts, I saw that it was an even worse case than the Edalji one, and that this unhappy man had in all probability no more to do with the murder for which he had been condemned than I had. I am convinced that when on being convicted he cried out to the judge that he never knew that such a woman as the murdered woman existed he was speaking the literal truth."

The victim was a Miss Marion Gilchrist, an elderly spinster living in Glasgow. She was murdered in her flat, in which she had lived for thirty years, on December 21, 1908. Her servant, Helen Lambie, was away at the time—purchasing a newspaper—and it was during her ten-minute absence that the murder was committed. Returning from her errand, the servant found a young man named Adams at the Gilchrist door, ringing the bell. He was from the flat below. He and his sisters had heard a noise above (in Miss Gilchrist's apartment) and a heavy fall, and he had been sent upstairs to ascertain what had happened. The servant opened the door with her key. Then, as they hesitated on the threshold, a man appeared from within, who approached them pleasantly, seemed about to speak, but instead passed them and rushed down the stairs. In the dining room the body of Miss Gilchrist was found, the head brutally beaten in and covered with a rug.

In spite of the fact that Miss Gilchrist was the possessor of a valuable collection of jewelry, robbery would appear not to have been the motive for the murder, since all that was missing was a crescent diamond brooch worth possibly £50. A box of papers had been broken open and the contents scattered. The description of the man as reported by Adams and Helen Lambie was not particularly good—they were in some disagreement—and it was not at all the description of Oscar Slater, a Ger-

man Jew by extraction, who was ultimately arrested and condemned for the crime.

The apprehension of Slater came about because he had pawned a diamond brooch just before starting for America. New York was warned of his prospective advent on American shores, and he was arrested and returned to Glasgow, where it was discovered beyond any doubt that the brooch in question had been in his possession for years and never had belonged to Miss Gilchrist.

The public had lost its head, however, and the police were in similar state. Slater was poor and without friends. His morals were shown not to have been of the highest, and Scottish virtue was shocked. A card of tools was found in his belongings; it was alleged that the hammer of the set had been the instrument of death. The description of the man seen by Adams and Helen Lambie was amended to fit Slater. The two principal witnesses were not sure, but they thought that the man they had seen in the hallway *might* have been the prisoner. Slater was in bad case. He proved a clear alibi, but, as his witnesses were his mistress and his servant girl, it was not allowed. No attempt ever was made to show a connection between Slater and Miss Gilchrist or between Slater and anybody in the house occupied by Miss Gilchrist. He was a stranger in Glasgow. At the trial he was not very well defended, and the Crown ultimately won a conviction—under Scottish law—by a vote of nine ballots to six. Slater was condemned to death, the scaffold was erected, and two days before the day set for the execution the sentence was commuted. He was resentenced to life-imprisonment and was serving his sentence when Conan Doyle became interested in his plight.

In Sir Arthur's brilliant pamphlet, *The Case of Oscar Slater*, now a rarity, there is all the fascination of a tale from the

chronicles of Sherlock Holmes. Many of its assertions, dogmatic and otherwise, might indeed have been quoted directly from those old pages. Is not this, for instance, the veritable accent of Holmes, talking to the faithful Watson?

> The trouble, however, with all police prosecutions is that, having once got what they imagine to be their man, they are not very open to any line of investigation which might lead to other conclusions. Everything which will not fit into the official theory is liable to be excluded. One might make a few isolated comments on the case which may at least give rise to some interesting trains of thought.

And, for a beginning, Sir Arthur wonders if the murderer was really after the jewels at all. . . .

> When he reached the bedroom and lit the gas, he did not at once seize the watch and rings which were lying openly exposed upon the dressing-table. He did not pick up a half-sovereign which was lying on the dining-room table. His attention was given to a wooden box, the lid of which he wrenched open. The papers in it were strewed on the ground. Were the papers his object, and the final abstraction of one diamond brooch a mere blind?

But, supposing the murderer to have been indeed after the jewels,

> it is very instructive to note his knowledge of their location, and also its limitations. Why did he go straight into the spare bedroom where the jewels were actually kept? The same question may be asked with equal force if we consider that he was after the papers. Why the spare bedroom? Any knowledge gathered from outside (by a watcher in the back-yard, for example) would go to the length of ascertaining which was the old lady's room. One would expect a robber who had gained his information thus, to go straight to that chamber. But this man did not do so. He went straight to the unlikely room in which both jewels and papers actually were. Is not this remarkably suggestive? Does it not pre-suppose a previous acquaintance with the inside of the flat and the ways of its owner?

But now note the limitations of the knowledge. If it were the jewels he was after, he knew what room they were in, but not in what part of the room. A fuller knowledge would have told him they were kept in the wardrobe. And yet he searched a box. . . . To this we may add that he would seem to have shown ignorance of the habits of the inmates, or he would surely have chosen Lambie's afternoon or evening out for his attempt, and not have done it at a time when the girl was bound to be back within a very few minutes. What men had ever visited the house? The number must have been very limited. What friends? what tradesmen? what plumbers?

Surely that is all good Sherlock Holmes, as—even more brilliantly—is this:

How did the murderer get in if Lambie is correct in thinking that she shut the doors? I cannot get away from the conclusion that he had duplicate keys. In that case all becomes comprehensible, for the old lady—whose faculties were quite normal—would hear the lock go and would not be alarmed, thinking that Lambie had returned before her time. Thus, she would only know her danger when the murderer rushed into the room, and would hardly have time to rise, receive the first blow, and fall, as she was found, beside the chair upon which she had been sitting. But if he had *not* the keys, consider the difficulties. If the old lady had opened the flat door her body would have been found in the passage. Therefore, the police were driven to the hypothesis that the old lady heard the ring, opened the lower stair door from above (as can be done in all Scotch flats), opened the flat door, never looked over the lighted stair to see who was coming up, but returned to her chair and her magazine, leaving the door open and a free entrance to the murderer. This is possible, but is it not in the highest degree improbable? Miss Gilchrist was nervous of robbery and would not neglect obvious precautions. The ring came immediately after the maid's departure. She could hardly have thought that it was her [*sic*] returning, the less so as the girl had the keys and would not need to ring.

The only alternatives to this reasoning, ventured Sir Arthur, were that "the murderer was actually concealed in the flat when Lambie came out, and of that there is no evidence whatever, or that the visitor was someone whom the old lady knew, in which case he would naturally have been admitted."

The narrative points out that, although the crime was a singularly bloody one, no marks of blood were found on match or matchbox and none upon the wooden box opened in the bedroom. "It has never been explained why a rug was laid over the murdered woman. . . . It is at least possible that he [i.e., the murderer] used the rug as a shield between himself and his victim while he battered her with his weapon. His clothes, if not his hands, would in this way be preserved."

In a brilliant examination of the evidence produced at the trial, the novelist questions the qualities of the witnesses, stresses the important fact that a knowledge of Miss Gilchrist's jewel collections was not, at the time of the murder, confined to the inmates of the house, and emphasizes the significant circumstance that a dog belonging to Miss Gilchrist had been poisoned in September of the year 1908—that is to say, more than a month before Slater arrived in Glasgow and more than two months before the murder. In his pamphlet he is very severe upon the Scottish Lord Advocate who conducted the prosecution.

All in all, it is a masterly document, ringing in every line with the curt inflections of Sherlock Holmes himself, and charged with that detective's hard logic and common sense. However, it was to no immediate avail. The novelist's newspaper campaign stirred England and even brought about another government commission to inquire into the affair; but nothing came of it, and Slater was allowed to languish in prison.

A strange aftermath of the case is recorded by Sir Arthur in his autobiography. Shortly after the trial of Slater, messages were received in a spiritualist circle, which purported to come from the murdered woman. She was asked what weapon had slain her, and she replied that it had been an iron box-opener—a singularly satisfying answer, according to Conan Doyle, considering the peculiar nature of the wounds upon the head. The writer also asserts that the name of the murderer was asked and a reply given, but he does not reveal what it was.

There for years the unhappy affair rested. From time to time, as Slater's incarceration lengthened, efforts were made to reopen the case, but not until nineteen years after the conviction were Sir Arthur's activities successful. Then, at long last, Slater was released—in July, 1928. According to newspaper reports, he accepted a government offer of £6,000 as compensation for his wrongs; then, with strange ingratitude, he refused to repay a sum of money guaranteed by Doyle before the retrial at which he was acquitted.

Minor mysteries were frequently presented for Sir Arthur's solution, and it was his pleasure, when in a detectival mood, to put his wits to work on them. In one, the habits of thought made familiar by Mr. Sherlock Holmes of Baker Street were copied with entire success. The case was that of a man who had disappeared after withdrawing his bank balance of £40, for which sum it was feared he had been slain. The last trace of the supposed victim was at a hotel in London; he had come up from the country only that morning. In the evening he was known to have visited a theater and then to have returned to his hotel and changed from his evening garments into walking clothes. This evening raiment was found the next day in his room. No one saw him leave the hotel, but a guest in a neighboring room stated that he had heard the man moving about

during the night. A week had elapsed when the novelist was consulted, and the police had discovered exactly nothing. A perfect opening for an adventure of Sherlock Holmes.

The facts were communicated by relatives of the missing man living in the country, and Sir Arthur answered by return post that, obviously, the vanished citizen was either in Glasgow or Edinburgh. It was later proved that he had gone to Edinburgh. One can almost hear the cry of the admiring Watson, "Wonderful, my dear Holmes!"—and the retort of the detective, "Elementary, my dear Watson, elementary!"

In *Memories and Adventures* Sir Arthur explains:

> The one advantage which I possessed was that I was familiar with the routine of London hotels. The first thing was to look at the facts and separate what was certain from what was conjecture. It was *all* certain except the statement of the person who heard the missing man in the night. How could he tell such a sound from any other sound in a large hotel? That point could be disregarded if it traversed the general conclusions. The first deduction was that the man had meant to disappear. Why else should he draw all his money? He had got out of the hotel during the night. But there is a night porter in all hotels, and it is impossible to get out without his knowledge when the door is once shut. The door is shut after the theatre-goers return—say at twelve o'clock. He had come from the music-hall at ten, had changed his clothes, and had departed with his bag. No one had seen him do so. The inference is that he had done it at the moment when the hall was full of the returning guests, which is from eleven to eleven-thirty. After that hour, even if the doors were still open, there are few people coming and going, so that he with his bag would certainly have been seen.
>
> Having got so far upon firm ground, we now ask ourselves why a man who desires to hide himself should go out at such an hour. If he intended to conceal himself in London he need never have gone to the hotel at all. Clearly then he was going to catch a train which would carry him away. But a man who is deposited by a train in any provincial station during the night is likely to be noticed, and he might be sure that when the alarm was raised and his description

given some guard or porter would remember him. Therefore, his destination would be some large town which he would reach as a terminus where all his fellow passengers would disembark and where he would lose himself in the crowd. When one turns up the time-table and sees that the great Scotch expresses bound for Edinburgh and Glasgow start about midnight, the goal is reached. As for his dress suit, the fact that he abandoned it proved that he intended to adopt a line of life where there were no social amenities. This deduction also proved to be correct.

In another case, involving a young woman engaged to be married to a foreigner, the man also disappeared, and by a similar process of reasoning Sir Arthur was able to show where he had gone and how unworthy he was of his fiancée's affection.

Not all the novelist's detective cases, however, were as successful as these. He relates with great gusto how, on the occasion of a burglary within a stone's throw of his own house, the village constable—with no theories at all—had actually seized the culprit when he (Sir Arthur) had got no farther than the Sherlockian conclusion that the man was left-handed and had nails in his shoes.

Even in his spiritualistic investigations, which occupied the later years of his life to the exclusion of almost everything else, the novelist was at all times the detective, applying the methods of his most famous fictive character to the obscure problems of psychic phenomena. A few years before his death he examined the curious claim of a number of children that they had seen and photographed living fairies; he even published a volume on the subject. To the end he was a remarkable example of the scientific investigator touched with the curiosity and credulity of a child—an admirable blend, it would seem, for the perfect sleuth.

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Poems

By HOWARD NEMEROV

Storm Windows

People are putting up storm windows now,
Or were, this morning, until the heavy rain
Drove them indoors. So, coming home at noon,
I saw storm windows lying on the ground,
Frame-full of rain; through the water and glass
I saw the crushed grass, how it seemed to stream
Away in lines like seaweed on the tide
Or blades of wheat leaning under the wind.
The ripple and splash of rain on the blurred glass
Seemed that it briefly said, as I walked by,
Something I would have liked to say to you,
Something . . . the dry grass bent under the pane
Brimful of bouncing water . . . something of
A swaying clarity which blindly echoes
This lonely afternoon of memories
And missed desires, while the wintry rain
(Unspeakable, the distance in the mind!)
Runs on the standing windows and away.

Sunderland

an eclogue

HE

It was on a winter's day, as cold, as clear
As water running underneath the ice,
Green starwort bending in the water-bed,
Swayed by invisible power.

SHE

Cold and clear,

So that when their mouths met in a first kiss
The meaning of it made them spirit-cold,
Or so they thought, while the two woolen bundles
Of body stood helplessly apart and watched,
While from within the warm and sighing breaths
Mingled together and went up in smoke,
Cold smoke.

HE

That was the moment that they would
Have wished to keep, if anyone had asked,
Years afterward, when soot and kitchen fat
Resulted from their fires, when a damp wool
Of children steamed around their winter's hearth,
When time came for the burial of friends.

SHE

If anyone had asked them, What do you
Remember best? they would have said, The day
In winter with the current clear and cold
Under the ice, the wild beast of the future
Baffled in leather and cloth, so that our kiss,
The first kiss, when it came, was spirit-cold,
Forbidding what it fed.

HE

Time, O dear time
Not only takes us but we ask for it,
Current we cannot bear the nearness of
Without we touch it.

SHE

But the world goes on,
Of course, and time goes on from bearing
To burying and back without our love.
And though we say, That was the way it was
One winter afternoon in Sunderland,
Some might reply, The lovers would have died
As certainly had they refused their love;
Or had they tried to nourish it on smoke

And make a progeny of vapors, no
Miraculous result would have resulted
When they had wasted all their breath in frost—
They would have died.

HE

This world is such you must
Sell it like hot cakes or sell it not at all.

SHE

What lesson then from this?

HE

None. There is none,
I guess, but that the lovers felt that way
Years afterward.

SHE

Or else, again, suppose
That they, arrested on the single kiss
Between all past time and the future which
Could happen only as they let it happen,
Refused to let it happen.

HE

That's been done,
I know, many a time, among lovers
Whose families or whose countries were at odds,
Forbidding them the future.

SHE

They died too.

HE

But dying they became, in marble lines,
Like gods, or, more than gods, like boys and girls
Immortal of limb and youth, such bodies as
Titian and Tintoretto drew, blood-warm,
Blood-live, but with a cast of coldness there
In that deep blue of distance and the stars,
Which signed them to eternity, not time.

SHE

You mean that they became like works of art?
Like, say, that Montague and Capulet
Whose high example from the marble tomb
Beckons all boys and girls to emulate
Their fever, not their fate?

HE

The circle closed
We end as we began.

SHE

A winter's day
In Sunderland, a kiss which though it could
Not be all spirit, would not yet be flesh.
Is this our moment of nobility,
Where every move's a sacrifice?

HE

O world,
What wickedness is yours.

SHE

Is ours.

HE

Is yours.

Those men and women walking in the street
Were boys and girls who on a single kiss,
A breath, weighed one against the other kingdom—

SHE

And ignominously fell?

HE

It was no fall.

These bodies crouching in the woolen jungle
Already bear the weapons and the scars
Of that old war where veteran Lucifer
Was beaten from the field, and it was here
He made his winter quarters—and it is
And was and will be one long winter yet.

SHE

I think we stand so near Jerusalem
The Golden, only the thickness of a hair,
Or not so much, no greater distance than
A kiss consumes, holds guard at the bright gate.

HE

You mean that we too must—?

SHE

Now our time's come,
What can we do but fail?

HE

I mean that too.

The Murder of William Remington

It is true, that even in the best-run state
Such things will happen; it is true,
What's done is done. The law, whereby we hate
Our hatred, sees no fire in the flue,
But by the smoke, and not for thought alone
It punishes, but for the thing that's done.
And yet there is the horror of the fact,
Though we knew not the man. To die in jail,
To be beaten to death, to know the act
Of personal fury before the eyes can fail
And the man die against the cold last wall
Of the lonely world—and neither is that all:
There is the terror too of each man's thought,
That knows not, but must quietly suspect
His neighbor, friend, or self of being taught
To take an attitude merely correct;
Being frightened of his own cold image in
The glass of government, and his own sin.
Frightened lest senate house and prison wall
Be quarried of one stone, lest righteous and high
Look faintly smiling down and seem to call
A crime the welcome chance of liberty,
And any man an outlaw who aggrieves
The patriotism of a pair of thieves.

Brainstorm

The house was shaken by a rising wind
That rattled window and door. He sat alone
In an upstairs room and heard these things: a blind
Ran up with a bang, a door slammed, a groan
Came from some hidden joist, and a leaky tap,
At any silence of the wind, walked like
A blind man through the house. Timber and sap
Revolt, he thought, from washer, baulk and spike.
Bent to his book, continued unafraid
Until the crows came down from their loud flight
To walk along the rooftree overhead.
Their horny feet, so near but out of sight,
Scratched on the slate; when they were blown away
He heard their wings beat till they came again,
While the wind rose, and the house seemed to sway,
And window panes began to blind with rain.
The house was talking, not to him, he thought,
But to the crows; the crows were talking back
In their black voices. The secret might be out:
Houses are only trees stretched on the rack.
And once the crows knew, all nature would know.
Fur, leaf and feather would invade the form,
Nail rust with rain and shingle warp with snow,
Vine tear the wall, till any straw-borne storm
Could rip both roof and rooftree off and show
Naked to nature what they had kept warm.
He came to feel the crows walk on his head
As if he were the house, their crooked feet
Scratched, through the hair, his scalp. He might be dead
It seemed, and all the noises underneath
Be but the cooling of the sinews, veins,

Juices, and sodden sacks suddenly let go;
While in his ruins of wiring, his burst mains,
The rainy wind had been set free to blow
Until the green uprising and mob rule
That ran the world had taken over him,
Split him like seed, and set him in the school
Where any crutch can learn to be a limb.
Inside his head he heard the stormy crows.

False Solomon's Seal

I wanted wisdom, yet the indifferent glance
Of one young probable virgin sets my knees
To splashing like two waves. Sister and spouse,
Garden with walls and towering city, *fons*
Signatus, let us die in abstinence
Of one another, sigh gales, yet refuse
To speak the solving word which opens chaos
And fuses Shebas with their Solomons.

We sublimate—sublime!—all tidal waves,
Tornadoes, temblors of the earth, for good
And all, finding the separateness that saves
Garden and city from the wilderness
Where lust and wisdom tremble to undress:—
So may we die before both Fall and Flood.

A Singular Metamorphosis

We all were watching the quiz on television
Last night, combining leisure with pleasure
When Uncle Henry's antique *escritoire*,
Where he used to sit making up his accounts,
Began to shudder and rock like a crying woman,
Then burst into flower from every cubbyhole
(For all the world like a seventy-four of the line
Riding the swell and firing off Finisterre.)
Extraordinary sight! Its delicate legs
Thickened and gnarled, writhing, they started to root
The feet deep in a carpet of briony
Star-pointed with primula. Small animals
Began to mooch around and climb up this
Reversionary desk and dustable heirloom
Left in the gloomiest corner of the room
Far from the television.

I alone,
To my belief, remarked the remarkable
Transaction above remarked. The flowers were blue,
The fiery blue of iris, and there was
A smell of warm, wet grass and new horse-dung.
The screen, meanwhile, communicated to us
With some fidelity the image and voice
Of Narcisse, the cultivated policewoman
From San Francisco, who had already
Taken the sponsors for ten thousand greens
By knowing her Montalets from Capegues,
Cordilleras from Gonorrheas, in
The plays of Shapesmoke Swoon of Avalon,

If ever you saw one.

When all this was over,
And everyone went home to bed, not one
Mentioned the *escritoire*, which was by now
Bowed over with a weight of fruit and nuts
And birds and squirrels in its upper limbs.
Stars tangled with its mistletoe and ivy.

A Primer of the Daily Round

A tygers hart in a players painted hide
A peels an apple, while B kneels to God,
C telephones to D, who has a hand
On E's knee, F coughs, G turns up the sod
For H's grave, I do not understand
But J is bringing one clay pigeon down
While K brings down a nightstick on L's head,
And M takes mustard, N drives into town,
O goes to bed with P, and Q drops dead,
R lies to S, but happens to be heard
By T, who tells U not to fire V
For having to give W the word
That X is now deceiving Y with Z,
  Who happens just now to remember A
  Peeling an apple somewhere far away.

When Yang and Lee produced their
Nobel Prize–winning discovery that "parity is not conserved"
—that all nature is not symmetrical—
why did scientists become so excited?

A NEW TWIST TO THE U

By O. R. FRISCH

On January 16, 1957, the postman brought me an air letter from the USA. It read: "Dear Robert, HOT NEWS: Parity is not conserved. Here in Princeton they talk about nothing else; they say it is the most important result since the Michelson experiment."

It is too early to say whether this is really as great a discovery as the famous experiment by Michelson and Morley which shook the world of science in 1887 and which ultimately, eighteen years later, led Einstein to that new way of thinking about space and time which we call the Relativity Theory. Its consequences are still being explored; its Einstein has yet to come.

E UNIVERSE

Why then has the news caused such excitement? Why has that obscure phrase "Parity Is Not Conserved" circled the globe like a new gospel?

Let me first translate it into everyday language. It means, roughly: "Some Laws of Nature Are Not Symmetrical." You may wonder why this should so surprise us. Nature is full of unsymmetrical things; even the human body, with its semblance of symmetry, has the heart on the left and the liver on the right (with rare exceptions). Even clear, colorless sugar water is unsymmetrical: if you pass polarized light through it it gets twisted to the left, never to the right.

But those are not laws of nature. The chemist can make a substance with all the chemical and physical properties of sugar except that it twists light to the right. The molecules of that substance are related to those of sugar as a left glove is to the right. Indeed, when the chemist tries to synthesize sugar from its chemical elements he gets in the first place a mixture of those "right-glove" and "left-glove" molecules; it is a matter of chance whether—as each molecule is formed—the atoms fall into the right-handed or the left-handed pattern. The laws of chemistry are symmetrical and give no preference to one or the other configuration. The sugar cane, on the other hand, makes sugar with the help of enzyme molecules which are of unsymmetrical shape and which enable the plant to produce the same configuration every time and thus to make cane sugar as we know it.

For another example, let us pay a brief visit to science fiction. You have established a radio link and a common language with a craftsman on Mars; then, with enough patience, you might explain to him the construction of a screw and persuade him to make one. You can tell him the material, the length, the diameter, the pitch; but there is no way of describing a right-handed screw so that he doesn't make a left-handed one. The only way to make sure is to show him a pattern, not necessarily a screw, but some unsymmetrical object to which both he and you have access; say a planet spinning on its axis and visible to both of you. You might think you could use the properties of sugar ("make a screw so that it screws in in the opposite sense in which light is twisted when it goes through sugar water"); but perhaps the plants on Mars make the other kind of sugar molecules! (You can see why I had to borrow from science fiction.) The laws of science are neutral; they do not distinguish between right-handed and left-handed objects.

Or so we thought until January 1957. Now let me describe

the experiment which has changed all that. It required pretty complex equipment: radioactive materials, Geiger counters, very strong magnets, extreme refrigeration; so complex that only a few laboratories on earth could repeat it. But in principle it was simple enough. It consisted in placing some radioactive cobalt between the poles of a strong magnet, cooling it to a very low temperature and observing the electrons which it sends out. In a specimen of radio-cobalt, such as used here, many thousands of its atomic nuclei break down spontaneously every second, each flinging out an electron at great speed in a random direction. A Geiger counter—capable of registering single electrons as they strike it—will count at the same rate, whether it is placed above or below the cobalt, or sideways; the presence of the magnet does not affect the direction in which the electrons are emitted.

But if the cobalt is cooled to an extremely low temperature —less than one hundredth of a degree from absolute zero—then things change. The cobalt nuclei are little magnets and usually they turn and dance and point in all directions at random, defying our attempts to bring them in line; but at extreme cold they become drowsy and allow themselves to be lined up, with their little south poles all pointing obediently to the north pole of the big magnet.

In that state we no longer expect them to fling out their electrons in random directions. Yet in 1956 practically all physicists were still confident that the electrons would be flung out in a *symmetrical* manner: as many toward the south pole as to the north pole, though perhaps a different number might go sideways. However, in January 1957, the experiment was done by a woman physicist, Dr. Wu of Columbia University jointly with the Washington scientists Ambler, Hayward, Hoppes, and Hudson. The outcome was as had been suspected by two Chinese-born theoreticians, Drs. Lee and Yang (since rewarded

by the Nobel Prize): more electrons are flung out toward the north pole of the big magnet than in the opposite direction.

Do you still want that screw made by our friend on Mars, at whatever cost? Then let us call him again and ask him to build equipment to set up the Wu experiment. We can explain all the details to him, with one exception: he wouldn't know how to tell a magnetic north pole from a south pole. And, of course, it would be useless to tell him that an iron bar wound with a copper coil in the shape of a right-handed screw develops a north pole at the end where the coil is connected to the negative pole of an electrical battery. He could tell the positive pole all right; there are some simple chemical tests for that; but to tell a right-handed screw is precisely his problem.

However, the Wu experiment gives him a way of telling the north pole: it is the one toward which radioactive cobalt, its nuclei frozen into somnolence, flings most of its electrons. And now we can turn the argument round: a right-handed screw is the shape of a copper coil which will produce a north pole at the end connected to the negative pole of the electricity supply. That may seem a very round-about way of describing a right-handed screw; but it is a description which does not depend on a pattern visible to both of us. It relies on the unsymmetric character of a law of nature.

One objection springs to mind: could it not be that cobalt nuclei come in two opposite shapes, like sugar molecules? After all, those nuclei consist each of 27 protons and 33 neutrons which, you might think, would be capable of arranging themselves in different patterns. But that suggestion won't wash; though there is much we have to learn about nuclei, we can be sure that they have no rigidity, that no definite right- or left-handed pattern could persist even for a second. And yet there is something in that suggestion; I shall come back to it before I have done.

"HE MUST HAVE KNOWN PARITY IS NOT CONSERVED."

Here, then, is a law of nature that is not symmetrical; and admittedly it is the first time such a law has been found. But why are we so surprised? Why have physicists been so convinced that nature is symmetrical at bottom?

I find it very difficult to give a good reason. The belief in the fundamental symmetry of nature seems to be one of those implicit convictions which are never stated because they seem self-evident. Perhaps it is because we ourselves are, at least superficially, symmetrical; if we were sea-snails living in screw-shaped shells we might not attach so much importance to symmetry!

Again, scientists like to get by with the simplest assumptions. If they are philosophically minded—which mostly they are not—they will admit that there is no prior reason why the laws of nature should be simple rather than complex. To assume the simple law is just good scientific strategy, one which in the long run tends to save time even though it often fails in the individual case. Symmetrical laws are attractive because they are simple, but that is no strong reason.

Space itself is symmetrical. That statement would have passed without challenge 200 years ago when Euclid's geometry reigned supreme. But since about 1830 we know that alternative systems of geometry can be formulated, including some which are not symmetrical. Those geometries were toys for the mathematical iconoclast until Einstein, in 1917, gave some reasons to think that the space in which we live is non-Euclidean. True, the deviations from Euclid's geometry were minute even over the vast spaces of the solar system, and utterly negligible within the framework of an atom. A geometry with a twist might have caused some asymmetry in the laws of gravity, but nothing of that kind was observed; the twist, if any, was too weak, and certainly much too weak to have any effect on what happened inside an atom.

But now comes an important point; the emission of electrons from radioactive nuclei is itself a very weak effect; that is, it happens some trillion times slower than one might expect from a simple application of atomic theory. Perhaps that is so because the effect depends for its very existence on some slight twist of space? Perhaps cobalt would not be radioactive if space were not twisted?

Here, my colleagues will note, I am off on the path of private speculation. But some such speculation is strongly suggested by the numbers as we find them in nature. Beta decay (as the flinging out of an electron by a nucleus is called) is some trillion times slower than electric processes in atomic nuclei; the gravitational attraction between two nuclei is some trillion trillion times weaker than the electric force between them. So beta decay seems to stand half way between the strong forces of electricity and the weak forces of gravity. And gravity is undoubtedly tied up with the geometrical properties of space.

It was Einstein who first made space a part of physics, from being just its backcloth. In his General Relativity Theory he gave space a job to do: the job of transmitting, through its varying curvature, the force of gravity which makes apples fall to the ground and planets swing about the sun. In this he succeeded, but at the cost of giving space a degree of reality that makes one uncomfortable. Perhaps space *is* the ultimate reality and matter is merely a disease of space; yet how can we discover the geometrical properties of space without the use of material measuring rods? This, I think, is one of the basic riddles of physics which won't be solved until we succeed in marrying General Relativity with Quantum Theory, reluctant mates if ever there were.

But let me now come back to the discussion of the Wu experiment. I have stated, somewhat categorically, that the cobalt nuclei are in themselves symmetrical; can we then point

to something else that is unsymmetrical and tells the electron where to go? We can. There has long been a strong suspicion, recently confirmed, that together with the electron another particle is flung out from the nucleus, a very inconspicuous object with no electric charge and no intrinsic mass, which slips away undetected, and is betrayed merely by the fact that the electron does not have as much energy as it should. The existence of this invisible thief was suggested by W. Pauli, around 1930, and the implications of that assumption were worked out by E. Fermi; to him is due the nickname, "il neutrino," which has become common scientific parlance.

To account for the finer points of radioactivity, Fermi had to treat the neutrino as a kind of electrically neutral brother of the electron; in particular, he had to ascribe to it the same spin, i.e., rotation about its axis, as to the electron. Spin itself, I must stress, is not an unsymmetrical property: an electron that is spinning clockwise as seen by you would spin anti-clockwise if you stood over on the other side. The same was assumed to be true for the neutrino. But there an important point has been overlooked. A neutrino, possessing no intrinsic mass, always moves at the speed of light. Hence you cannot look at it first from behind and then from the front; to do that you would have to move faster than light, and Einstein won't allow you. A neutrino, travelling away from the nucleus that fired it and possessing a clockwise spin—like a rifle bullet fired from a barrel with a right-handed rifling—will look the same to all observers. A dot painted on the side of a rifle bullet describes a screw-shaped path, and in the same way a neutrino—though you can't paint spots on it—defines either a right-handed or a left-handed screw. *A priori* it might rotate about an axis across its direction of motion like a rolling wheel; but Einstein cannot prevent us moving from the right of the neutrino to its left, and the clock sense would again be arbitrary, as with electrons.

All this argument is very clumsy and almost impossible to pursue to its conclusion because everyday language is not well fitted to deal with spinning particles that move with the speed of light. The physicist can go through all that and a lot more in a few lines of mathematics; but I want to stress that mathematics is not magic. It is merely another language, in which the ability to deal concisely with matters of interest to the scientist has been purchased at the cost of inability to deal with any other matters. All you can say in formulas can be said in plain English; but it might take many pages to convey the exact meaning of a formula one line in length.

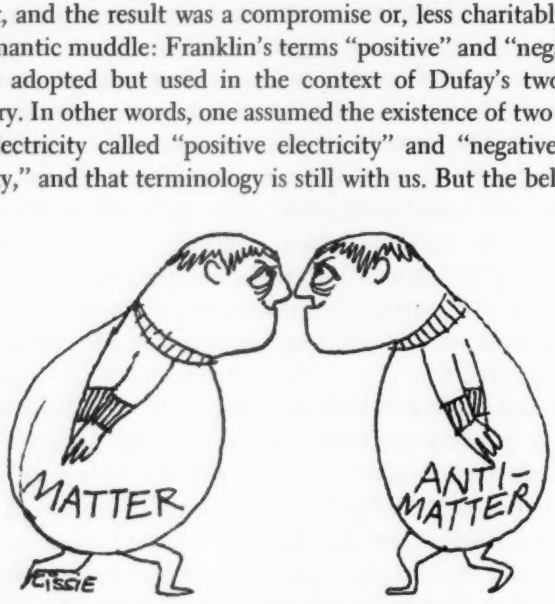
Let me then skip the rest of the argument and merely report the result: the findings of Dr. Wu can be accounted for by postulating that it is in the nature of the neutrino always to spin clockwise. Now the cobalt nuclei themselves spin, and at extreme cold, in a strong magnetic field, they tend to spin all in the same direction. The nucleus which results from their radioactive decay is one of nickel, which is known to spin less vigorously. The neutrino, with its clockwise compulsion, will tend to go off in such a direction that its own spin helps the nucleus in its transition to a state of less spin, and the direction in which the electron is flung is influenced by that of the neutrino. This is again a long and clumsy argument, but with the aid of mathematics it can be carried through and made quantitative, and the result agrees with the outcome of the Wu experiment.

Does all this mean that the universe has a definite twist? To deal with that question we have to look at quite a different aspect of physics, and take a big leap to the year 1734. A Frenchman, C. F. Dufay, was rubbing various substances, such as glass and resin, and studying the way they attracted light objects and repelled them again after brief contact. He concluded that there was not one kind of electricity but two,

which he called vitreous and resinous; bodies carrying the same kind were found to repel each other, while there is an attraction between the two different kinds of electricity.

From that observation stems a controversy which has swung, pendulum-like, through the next two centuries. Dufay suggested that there were two electric fluids, of equal standing, which were able to neutralize each other; i.e., a body containing equal amounts of the two would show no electrical effects. Benjamin Franklin, on the other hand, pointed out that one could get by with one fluid, of which each body had to contain a definite amount in order to appear non-electric; he spoke of a positive or negative charge depending on whether the body contained too much or too little of this electric fluid.

At the time there was no means of deciding which view was right, and the result was a compromise or, less charitably put, a semantic muddle: Franklin's terms "positive" and "negative" were adopted but used in the context of Dufay's two-fluid theory. In other words, one assumed the existence of two kinds of electricity called "positive electricity" and "negative electricity," and that terminology is still with us. But the behavior



of electricity as known at the time was completely symmetrical with respect to an interchange of "positive" and "negative," and the allocation of those terms to rubbed glass and amber respectively was quite arbitrary.

That symmetry disappeared in the late nineteenth century with the discovery of the electron by J. J. Thomson. The light mobile electrons contained in all matter are always negatively charged, while the positive charge is attached to the heavy part of matter, to the atomic nuclei as we now know. Franklin would have been pleased, for this was a complete victory of his one-fluid theory! He would only have regretted that he had chosen his signs the wrong way round, saddling his fluid—the electrons—with a "negative" charge.

In 1933 there was the first indication that symmetry was on the way back: positively charged particles, behaving otherwise just like electrons, were discovered in the cosmic radiation. The discovery of those "positrons" emphasized a point that had been worrying the theoretical physicists all along: the laws of electricity are basically "charge-symmetrical," they give no reason why particles of some kind should always carry one sort of charge and never the other. Indeed, in 1928, when Dirac succeeded in constructing a theory of electrons that took account of both quantum theory and relativity theory, he found that the existence of electrons of both signs could be deduced from this. He could foresee—and this was indeed found to be so—that an encounter between a positive and a negative electron would lead not merely to neutralization but to annihilation: both particles would disappear in a brief flash of gamma radiation. Each would be the lethal enemy, the "anti-particle," to the other.

This led quickly to the speculation that not only the electron but each particle had its anti-particle, the two being equally heavy, but opposite in respect of charge, magnetic properties,

and so on. From such anti-particles, anti-matter could be formed. Any encounter between matter and anti-matter would lead to wholesale annihilation, producing vast quantities of penetrating rays. This is not happening anywhere near around us, and we can be sure that the galaxy in which we live is all the same kind of matter. But when it comes to other galaxies we cannot be sure.

You may have noticed the smell of science fiction in the air once again, and indeed I am ready for another flight of fancy. You remember that message we sent to our friend on Mars, asking him to set up the Wu experiment in order to construct a right-handed screw. Let us assume the message was intercepted, on its flight through the depth of space, by an intelligent being who lives on an anti-galaxy. He would have no means of telling that his atomic nuclei carry the opposite charge from ours; he may not even suspect the existence of anti-matter (which is what he would call our matter if he came across a piece of it). He might feel challenged by the message and decide to follow its instructions. Would he succeed in producing a right-handed screw, or would it come out left-handed?

The Wu experiment alone does not tell us the answer, and, of course, we have no anti-cobalt to make sure. But we have nuclei which fling out, not an electron but an anti-electron, i.e., a positron; and with that there must go an anti-neutrino. The Wu experiment has been repeated with nuclei of that type (in Holland) and the result was as might have been expected: the anti-neutrino spins the opposite way from the neutrino. Our anti-craftsman will make a left-handed screw.

Thus our two asymmetries—left-right and positive-negative—are seen to merge into one vaster symmetry. Right- and left-handed screws can be recognized only as long as positive and negative charges can be recognized. So in a sense our craftsman on Mars, even though we didn't show him a pattern, possessed

one in every electron, in every nucleus on his planet. Martian plants may produce the wrong kind of sugar; but Martian electrons and nuclei are the same kind as ours. But in the larger context of a universe that contains both matter and anti-matter, symmetry is again restored. A physicist who had stepped, Alice-like, through the looking glass, wouldn't know the difference unless he did the Wu experiment; if the world behind the glass was made of anti-matter he would never know the difference, even with Dr. Anti-Wu to help him.

Has, then, the pendulum come to rest at last? Has symmetry been established for good? I am not so sure. It all depends on whether anti-matter really prevails in large parts of the universe, or whether positrons, antiprotons, etc., are merely sporadic visitors to our world, forced into brief and reluctant existence by the onslaught of a cosmic ray particle or a determined physicist. The light that comes to us from distant galaxies is neutral; it doesn't tell us whether it was sent out from matter or anti-matter. But galaxies sometimes come into collision, and if this happens with two galaxies made of the opposite kind of matter, we might be able to tell, though it happens a thousand million light years away.

This is where we look to the radio-astronomers for help. With their giant aerials they can detect radiation from a greater distance than our biggest telescopes. Unfortunately, they cannot show such fine detail, nor do they show the tell-tale spectral lines from which we can learn a lot about the physical state and the temperature of a distant object. So we use them chiefly for scouting: the strong sources of radio waves that they have detected are being taken, one after another, under the scrutiny of the great 200-inch telescope of Mount Palomar. Often the object turns out to be some nearby swirl of hot gas, a small nebula within our own galaxy; but in several cases the big telescope has shown us an oblong blob emitting the character-

istic spectral lines of an exceptionally hot gas, all the signs of two galaxies in the slow and inexorable process of mutual penetration, a "collision" lasting a million years or more. One of those pairs, in the constellation of the Swan, appears to be even hotter than the others; perhaps here we are watching a galaxy and an anti-galaxy, locked in deadly embrace. But then, perhaps, the extra heat is merely due to an exceptionally vigorous collision; the astronomers are not sure.

So in the end the universe may yet turn out to be asymmetrical, the anti-proton being but a rare visitor, a right-handed screw being recognizable anywhere. This is, of course, tied up with the question of how the universe came into existence; whether it was born in some vast primordial explosion—as Gamow and others would have it—or whether creation is a continuous process, with new matter being born all the time according to the ideas of Bondi, Gold, and Hoyle. My own guess is that the pendulum will yet swing back to asymmetry, and perhaps within the next decade.

After stretching our limbs in intergalactic space, let us come back to Earth. Where is this going to lead? Will it enable us to make better television sets or airplanes? Yes; in a sense. Every advance in our understanding of the physical world will ultimately have some impact on technology; I don't think any discovery in the past has failed eventually to do so. But I don't really care. For me the delight in physics lies in the way it forces our mind again and again to recognize wider and subtler relations; in the sudden illumination when two seemingly unrelated patterns fall into higher harmony. I doubt if I have managed to convey more than a small fraction of it in these few pages. I still haven't explained what parity is, and I couldn't do it without getting much more technical than you could bear. But perhaps I have given some idea of why we think the discovery that parity is not conserved is important.

The discovery of fission has opened vast possibilities for power, destructive and constructive; life will never be as it was before. But conceptually it was no great discovery; it could all have been foreseen. Conceptually the new twist that has just been given to the universe is much more important than fission which—to quote my colleague, Dr. D. H. Wilkinson—"is really of no significance to anybody except people."

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THE BUSINESS OUTLOOK

Docksey Ratz: *"Ah, sir, I was once like you—rich, happy and contented. Could you spare me a few pennies, sir?"*

Businessman: *"I'll give all I've got left—twenty five cents—if you'll tell me whether that water is warm enough to drown comfortably in."*

From *Caricature, Wit and Humor of a Nation*, 1908.

The Man Who Dies Rich

Irvin G. Wyllie's lighthearted look at some of America's most famous givers—and non-givers

"Philanthropists are commonly grave,
occasionally grim,
and not very rarely morose."
—OLIVER WENDELL HOLMES

There is a certain injustice in the fact that when we think of public men we think of politicians, generals, and diplomats, and only rarely of philanthropists.

Yet the philanthropist is very much a public man, one who moves outside himself to advance the interests of the society in which he lives.

By historic definition he is a lover of mankind, a man who involves himself in projects that promote the enlightenment, happiness, and well-being of others.

It is impossible to be a philanthropist in private: the office requires the forging of links to the larger social order.

The philanthropist may be a millionaire or a settlement house worker, a contributor of money, ideas, or service, but whatever his vocation or special contribution he operates in the public domain.

One of the most significant questions we can ask about the philanthropist is: How did he stand with his constituents—what was his reputation among the men he professed to serve?

Public reactions indicate that there are qualitative differences among philanthropists as among other classes of men: some are highly reputable, others are barely reputable, still others are quite disreputable.

A century ago, when abolitionists and other troublesome reformers passed as philanthropists, the vocation was in low repute. To this day the name of William Lloyd Garrison fails to evoke universal admiration, for, whatever he may have contributed to the freeing of the slave, his career aroused the suspicion that he did not love all mankind.

Garrison's neighbor, Ralph Waldo Emerson, summed up the case against this breed of benefactors. "If malice and vanity wear the coat of philanthropy, shall that pass? If an angry bigot assumes this bountiful cause of Abolition, and comes to me with his last news from Barbadoes, why should I not say to him, 'Go love thy infant; love thy woodchopper; be good natured and modest; have that grace; and never varnish your hard, uncharitable ambition with this incredible tenderness for black folk a thousand miles off.' They love afar to spite at home."

Emerson's remarks hint at the yardsticks that Americans have always used in taking the measure of their philanthropists, standards that have been articulated time after time in the massive and discriminating public commentary on the lives and deeds of the benefactors.

There is no mystery about it. Before he can win a place in the

philanthropic hall of fame the benevolent American must convince his beneficiaries that (1) his charity flowed from love and not from vanity or self-interest, (2) he accepted the dominant values and aspirations of his society and identified himself in a personal way with his city or the nation, and (3) he contributed something toward the solution of one or more of the significant problems of his age.

This thesis regarding the basis of reputability can be tested against evidence from every field of philanthropic endeavor, including the welfare field. An examination of public reactions to the work of Samuel Gridley Howe, Charles Loring Brace, Franklin B. Sanborn, Dorothea Dix, and Jane Addams would shed considerable light on the validity of these propositions.

On a more personal level such an examination might also show whether the senior Oliver Wendell Holmes was right when he said of workers in the welfare field, "Philanthropists are commonly grave, occasionally grim, and not very rarely morose."

The more inclusive thesis, however, can also be examined in the light of evidence drawn from the public response to the careers of the millionaire business philanthropists of the nineteenth century.

Since the Civil War the term philanthropist has generally conjured up in the popular mind the image of a wealthy donor. There may be an injustice in this identification, since the millionaire's contribution is more sporadic than that of the social worker and the total of his giving fails to equal that of his less fortunate fellows. Yet the single magnitude of the great gift is impressive and serves to keep its donor in the public eye.

Granted the crucial role of businessmen in the power structure of the nation, it would be foolish to argue that public interest in the philanthropic deeds of the wealthy is altogether

misplaced. Anyone interested in the American consensus on philanthropists will do well to look at the wealthy donors.

It was impossible for the rich man of the last century to be unaware that he was expected to be charitable, for a thousand needling reminders surrounded him on every side. If as a boy he went to school to the McGuffey readers, he learned that "God gives a great deal of money to some persons in order that they may assist those who are poor." If he was religious, and attended any of the leading Protestant churches, he was bound to hear sermons on the stewardship of wealth. If he lived in Boston in the year 1854, and attended the meetings of the Mercantile Library Association, he heard Charles Sumner say, "If the merchant be in reality our feudal lord, he must render feudal service; if he be our modern knight, he must do knightly deeds; if he be the baron of our day, let him maintain baronial charity to the humble. . . ."

In his dealings with his lawyer the rich man was likely to be reminded of the importance of a will and perhaps to hear in detail of the many charitable uses that had been approved under English and American law.

If he called his physician, he put himself in the hands of one of philanthropy's most subtle agents, for doctors often acted on the advice that Cotton Mather addressed to the medical profession: "Sirs, your permission 'to feel the pulse' of eminent persons, may enable you to promote many a good work; you need not be told what: you will soon perceive excellent methods, if you will only deliberate upon it. . . . You know how ready the sick are to hear of good proposals."

The businessman who read his newspaper certainly knew of the air of excitement and anticipation that surrounded the death of any of his wealthy colleagues. "Perhaps not even the death of the President could have created a greater sensation in this city," reported a Philadelphia newspaper on the occasion

of the death of Stephen Girard in 1831. "Curiosity is on tiptoe to know what he has done with his money." If, as in Girard's case, the reading of the will proved the man to be a public benefactor, he received discriminating praise.

But if, as in the case of Alexander T. Stewart, the will contained no important public provision, he received equally discriminating censure. The fact that Stewart had contributed $50,000 to relieve victims of the great Chicago fire did not prevent the *Chicago Times* from saying on his death that he was noteworthy only because he had sold more goods and made more money than any other merchant in America. "The question, What did he give away? is naturally asked of a man so wealthy," said the *Times*, "and there is quite as naturally a general disappointment at the answer."

The businessman who failed to give did so by design and not by accident. We have had a goodly share of antiphilanthropic men of wealth, men in whom the flame of public spirit burned very low.

When a clergyman approached John Jacob Astor on behalf of a charity and congratulated him on his increased ability to do good with his expanding fortune, Astor sent him on his way with the tart remark that the disposition to do good does not always increase with the means.

On another occasion, when confronted by a begging immigrant from his own native village of Waldorf, Germany, Astor loosened his grip on his millions and gave the man five dollars. When the beggar protested that Astor's son William had just given him ten dollars, the old man replied, "Well he may, the dog has a rich father."

His only American benefaction of any consequence was a bequest of $400,000 for the Astor Library in New York, and it was common knowledge that he made this gift grudgingly un-

der extreme pressure from his long-time associate Joseph Green Cogswell. Little wonder that he was roundly denounced.

Horace Mann asserted that Astor was "the most notorious, the most wealthy and, considering his vast means, the most miserly of his class in this country. Nothing but absolute insanity can be pleaded in palliation of the conduct of a man who was worth nearly or quite twenty millions of dollars, but gave only some half million, or less than a half million of it for any public object."

James Gordon Bennett of the *New York Herald* anticipated Henry George by arguing that since the pressure of population on real estate had been the most important single factor in building the Astor fortune, at least half of it rightfully belonged to the people of New York.

William B. Astor left no more to charity than his father, though the old man's fortune doubled in his hands. His philanthropic bequests amounted to only a little over 1 per cent of a hoard estimated at forty millions.

New York attorney George Templeton Strong, amused by a newspaper report that an extortionist had tried to relieve William B. Astor of fifty thousand dollars, recorded in his diary that "none but a genius in rascality, a Michael Angelo of swindlers, could have conceived so sublime an idea."

When Astor died, newspapers all over America reported the sorry fact that in his eighty years he had done little for his city, his country, or his fellow men. It would have been easy for him to have come to grips with one of the major social problems of the day, the problem of urban housing. He invested his money in houses and real estate, yet he never felt the urge to underwrite any experiments in this field or to open up any new lines of action. "One feels in his case an extreme sense of disappointment," declared the *London Spectator*, "as if, living in such a country, with such a family history, he ought to have

been more original, more splendid, generous, more of a benefactor to his kind."

Cornelius Vanderbilt is another case in point. Many people wrote him begging letters, but he did not answer. "If I should give them my whole fortune," he said, "one-half would go to thieves and the other half to people whose folly and improvidence would squander it in a week, leaving them worse off than before."

He despised fund-raisers of all sorts, especially the ministerial kind. When the first Mrs. Vanderbilt's pastor persisted in asking for contributions, he got rid of him by handing him a one-way steamship ticket to the West Indies.

While walking on Broadway one day he met his old partner in Nicauraguan business schemes, E. H. Carmick, who asked him to subscribe something toward the building of a haven on Staten Island for broken-down merchants. "No, Carmick," the Commodore replied, "you ought to be about better business! Don't you know that about half the people's 'broken down' one way or another, and that if you was to roof Staten Island right over, it would be filled up before you could turn around?"

In his last years he did give fifty thousand dollars to purchase the Church of the Strangers in New York and contributed about a million dollars to establish Vanderbilt University. Each of these contributions, however, is more a tribute to the blandishments, persistence, and resourcefulness of the Commodore's second wife and her preacher ally, Charles Force Deems, than to any large public spirit on his part. Like John Jacob Astor, he aimed at nothing higher than the establishment of a family and the perpetuation of his fortune.

The *Galaxy*, commenting on the wills of Astor, Stewart, and Vanderbilt, insisted that "the testamentary aim of the richest trio that ever lived in America was to escape this national trait of beneficence. . . . Unprecedented and incredible thing in

America, neither Stewart nor Vanderbilt left one poor dollar of his fifty or sixty millions to any municipal or charitable purpose. . . . The contrast is startling between the bequests of an Astor, a Stewart, and a Vanderbilt, and those of a Girard, a Peabody and a Johns Hopkins."

Whether a man gave or not determined whether he had any claim to the name of philanthropist, but Americans also made many important distinctions within the class of benefactors. The philanthropist's methods, objectives, and timing had an important bearing on his reputation.

In the matter of timing, for example, it is perfectly clear that the public has always rated lifetime givers above testamentary givers. Benjamin Franklin summed up the national prejudice in this matter when he said that the testamentary giver is like "a fat hog, who never does good till dead as a log."

He who gave only in death aroused the suspicion that he gave only that which he could no longer withhold. The man who could go through life without finding any disaster to relieve, any suffering to alleviate, any door of opportunity to push open, could scarcely pass as a friend of mankind. Andrew Carnegie's maxim, that the man who dies rich dies disgraced, merely reflected public sentiment in this matter.

Likewise, America has preferred the benefactor who gave himself along with his money, something manifestly impossible for the testamentary giver or the man who wrote a check without involving himself in the cause. The most reputable philanthropists have given time, thought, and personal care to their charities, for they have sensed that beneficiaries measure gifts in terms of personal service, whether the gifts consist of a breakfast, a coat, or a million dollars.

"The poor want nothing less than me myself," wrote Henry Thoreau, "and I shirk charity by giving rags and meat."

When New York's charity organizations criticized individual

philanthropists who organized their own programs to relieve distress growing out of the Panic of 1893, the clergyman Lyman Abbott gave the agencies a verbal spanking, accused them of overrating scientific charity and of putting a bureaucratic wall between donors and beneficiaries. "The spirit of officialism and the spirit of love cannot dwell together," he said.

Stephen Girard's reputation was enhanced by public awareness that he gave indiscriminately to almost any unfortunate who crossed his path and by appreciation of the fact that he had gone out into the streets of Philadelphia to minister personally to the sick and the dying during the terrible yellow fever epidemic of 1793.

This may be only another way of saying that Americans have always wanted to associate names with deeds. There is a tradition in philanthropy that the benefactor must work quietly and unostentatiously, so as not to advertise his social superiority or otherwise offend the democratic conscience. Probably Amos Lawrence of Massachusetts would be better known today if he had not kept so many of his charities to himself.

There is, however, another democratic tradition which says that the public has a right to know, the right to possess the information necessary to judge who has done much and who has done little. The record is so full of fraudulent claims for credit for unpublicized charities that the public has had reason to suspect that secrecy and inactivity are two sides of the same coin. When philanthropic reputations were at stake it paid to advertise.

"I like him," said Mr. Dooley of Andrew Carnegie, "because he ain't ashamed to give publicly. . . . Ivry time he dhrops a dollar it makes a noise like a waither fallin' downstairs with a tray iv dishes."

If the philanthropist was caught between the American

preference for both modesty and publicity, he was also caught between the humanitarian sentiments and the status strivings of American society. On the one hand, he was expected to relieve distress in whatever form it appeared; on the other, he was forbidden to do anything that might undermine self-reliance, initiative, and ambition.

America's business benefactors regarded English provisions for the systematic relief of the poor as something to be avoided at all costs. Andrew Carnegie, who knew something of both the English and the American situation, argued that every man supported by charity was a source of moral infection to his neighborhood and asserted that of every thousand dollars spent for poor relief nine hundred and fifty had better be thrown into the sea.

"No beggar is iver turned impty-handed f'rm the dure," said Mr. Dooley in a jibe at Carnegie. "Th' pan-handler knocks an' asts f'r a glass iv milk an' a roll. 'No sir,' says Andhrew Carnaygie. 'I will not pauperize this onworthy man. Nawthin' is worse f'r a beggar-man thin to make a pauper iv him. Yet it shall not be said iv me that I gave nawthin' to th' poor. Saunders, give him a libry, an' if he still insists on a roll tell him to roll th' libry.' "

Carnegie did not speak for all American philanthropists, for many did give to the poor when the times were out of joint. But he was representative in his insistence that philanthropic money should be used to expand opportunity, to help others make their way in the world as he had made his. His enthusiasm for libraries can be explained in terms of his idea that libraries served as ladders on which the aspiring poor might climb.

The universal enthusiasm of business benefactors for educational endowments can be explained on the same basis. A reputation for feeding and clothing the poor might testify to a rich

man's humanity, but it hardly proved that he understood the drift of American life. In a society dominated by dreams of opportunity and abundance, the idea of poor relief seemed almost un-American.

Our most reputable philanthropists have been distinguished for their astuteness in discovering opportunities for constructive social service suited to their times. When Stephen Girard drew up his famous will in 1827, he had in mind the plight of orphans, whose misery he had come to know during the yellow fever epidemic, and the educational problems of the poor, who at that time could not get free schooling in Pennsylvania without identifying themselves as paupers. Whatever may be said of the imperfections of Girard's plan, his gift served as a reminder that the paths of educational opportunity needed to be widened.

Peter Cooper's Union, which anticipated later developments in industrial and adult education, was, as the *New York Sun* pointed out, "a sincere and disinterested effort to meet a real necessity, not an attempt to gratify a vain whim or to make a display of benevolence. . . . It was for the run of people, and to help them along; not for any small class, and was not undertaken after the fashion of so many philanthropic foundations, in the ignorance of popular wants and feelings which springs from lack of real sympathy with the people and hearty respect for them."

In 1868, when America stood on the threshold of an age in which even ordinary men would need to know something about science, J. P. Morgan helped to create the American Museum of Natural History. When Andrew Carnegie established the Carnegie Institution at the turn of the century he was commended for his vision in supplying that which was most needed in American higher education at the time, a national agency devoted to research.

If America expected her philanthropists to be sensitive to current needs, she also expected them to be aware that there was a limit to what even the wisest and most liberal charity could accomplish. A college here, a soup kitchen there, did not add up to Utopia. Philanthropy was no substitute for social justice.

"There has been no period of time in which wealth has been more sensible of its duties than now," wrote James Russell Lowell in 1884. "It builds hospitals, it establishes missions among the poor, it endows schools. . . . But all these remedies are partial and palliative merely. It is as if we should apply plasters to a single pustule of the smallpox with a view to driving out the disease. The true way is to discover and to extirpate the germs."

America preferred benefactors who did not view philanthropy as an antidote to reform but rather as an admission that reform was necessary. To give was to confess the need, and to confess the need was to open the door to change.

Did America ever produce a perfectly reputable philanthropist, a man who embraced in his person all the virtues and attitudes here described? She did, and his name was Peter Cooper. His reputability cannot be measured in quantitative terms, for others gave more than he, others received more publicity, others are better remembered today. But no benefactor ever stood closer to the people he tried to serve than he, and none ever received so much reciprocal love from his fellow men. It could not be said that his charity, like Girard's, offset a forbidding personality; or that, like Rockefeller's, it helped him live down his business past.

Cooper lived the stewardship of wealth. He gave the bulk of his fortune, not just the surplus, and he gave it while he lived. Occasionally he gave to the poor, but through his Union he tried to supply opportunities that would make such aid unnec-

essary. Recognizing the limits of charity, he turned in his old age to political reform and to thoughts of a benevolent state.

Shallow men have viewed his campaign for the presidency as a Greenbacker in 1876 as an unaccountable aberration, when it was in fact a logical extension of his philanthropic career. Cooper was, in every sense, a public-spirited man. His sense of debt to the city of his birth and his love for the nation were boundless; his identification with both was complete.

He put full-length portraits of Washington, Franklin, and Lafayette in the main lecture room of the Cooper Union, for the heroes of the republic reminded him of all his brightest hopes for the renovation and improvement of the world.

When word of Cooper's death spread through New York on April 4, 1883, flags all over the city dropped to half-mast, and shops were draped with black. On the day of his funeral the busiest thoroughfares were closed to business. Countless thousands wept in the streets. New York mourned as it had not mourned for eighty years, when the body of George Washington passed through the city.

No one needed to ask for whom the bells tolled. By some intuitive process Peter Cooper's neighbors seemed to understand that America had lost a philanthropist who was worthy of the name.

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LETTERS

To the Editor:

Perhaps if he had more editorial elbow room, Dr. S. W. Becker, Jr., could fill in those tantalizing ellipses in his brief argument on radiation hazards, *Circumstance*. Something seems to be left out: How else could Dr. Becker equate scientists' warnings against radiation dangers (with which he in substance agrees) with the belief that present-day man "represents ultimate biologic perfection"?

No one is saying that—least of all, the geneticists who have some grave doubts about the steadily rising level of radioactivity on this planet. But, fish or man, every organism strives to preserve itself. Whatever superior androids will replace us I don't know. The problem, in the context of imminent *radiation-induced* mutations, is irrelevant.

Other organisms have gone down in the long evolutionary struggle; but when did one connive its own destruction? Dr. Becker's point, of course, is that protean man will adapt come what may. He wants to avoid the authoritative prognostications of other scientists around us. Yet, given his statement that

> one cannot doubt that certain individuals are suffering organic damage, and no one condones the indiscriminate release of harmful radiation into the atmosphere,

his neutralism becomes somewhat suspect. Is this science—or is it scientism?

Sincerely,

MARGARET REYNOLDS

MIDWAY Authors

RICHARD M. DORSON is professor of history and folklore at Indiana University, director of their Folklore Program, and editor for the American Folklore Society. He has published seven volumes and eighty journal articles in the field of folklore and American culture.

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SIR JULIAN HUXLEY, biologist and author, has held a great many teaching and service posts, among them Secretary of the London Zoölogical Society and Director-General of UNESCO. His publications are countless, as are the honors he has received, among them the Huxley Memorial Lecture and Medal of the Royal Anthropological Institute and the Darwin Medal of the Royal Society. The article printed in this issue is abridged from an address given at the University of Chicago Darwin Centennial Celebration last fall. It will appear in full in *Evolution after Darwin: Issues in Evolution*, to be published shortly.

DAVID L. LADD writes with authority on patent law. For the past seven years he has been associated with the patent law firm of Ooms, McDougall, Williams and Hersch in Chicago. He attended Kenyon College and the University of Chicago, graduating from the latter's law school in 1953.

MYRON LIEBERMAN is director of basic research for the Educational Research Council of Greater Cleveland. He has taught in the public high schools of St. Paul and at the universities of Illinois, Oklahoma, and Yeshiva. He is education consultant for *The Nation*.

HOWARD NEMEROV has had four books of poetry and three novels published. He is a member of the literature faculty at Bennington College. The poems which appear here are from his book, *Mirrors and Windows*.

SIMON ROTTENBERG confesses that he is not much of a baseball fan, a position which enables him to view the industry dispassionately. He is, however, a specialist in labor economics and the economics of growth and is associate professor in the Department of Economics at the University of Chicago. He is the author of *Technical Assistance in Latin America: How U.S. Business Firms Promote Technical Progress*, published by the National Planning Association.

VINCENT STARRETT, whose well-known column, "Books Alive," appears in the Sunday *Chicago Tribune*, is the author of more than fifty books in the field of fiction, bibliography, verse, and literary criticism, among them *Best Loved Books of the 20th Century*, *Bookman's Holiday*, and *Books Alive*. The chapter which appears here is from *The Private Life of Sherlock Holmes*, recently re-issued by the University of Chicago Press in a revised and enlarged edition. The original book, published by Macmillan Co. in 1933, enjoyed over twenty-five years of international popularity and has become a collector's item.

IRVING WYLLIE is associate professor of history at the University of Wisconsin.